

=> file reg

FILE 'REGISTRY' ENTERED AT 20:10:12 ON 11 DEC 2002  
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STRUCTURE FILE UPDATES: 10 DEC 2002 HIGHEST RN 475623-85-9  
DICTIONARY FILE UPDATES: 10 DEC 2002 HIGHEST RN 475623-85-9

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when  
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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP  
PROPERTIES for more information. See STNote 27, Searching Properties  
in the CAS Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d his

(FILE 'HOME' ENTERED AT 19:50:14 ON 11 DEC 2002)

FILE 'LREGISTRY' ENTERED AT 19:51:28 ON 11 DEC 2002

L1 STR

FILE 'REGISTRY' ENTERED AT 20:02:44 ON 11 DEC 2002

L2 0 S L1

L3 58 S L1 FUL

SAV L3 WIL876/A

FILE 'LREGISTRY' ENTERED AT 20:03:56 ON 11 DEC 2002

L4 STR L1

FILE 'REGISTRY' ENTERED AT 20:05:09 ON 11 DEC 2002

L5 0 S L4 SSS SAM SUB=L3

L6 6 S L4 SSS FUL SUB=L3

SAV L6 WIL876A/A

FILE 'CAOLD' ENTERED AT 20:06:35 ON 11 DEC 2002

L7 0 S L6

L8 5 S L3

FILE 'ZCAPLUS' ENTERED AT 20:06:52 ON 11 DEC 2002

L9 6 S L6

L10 38 S L3

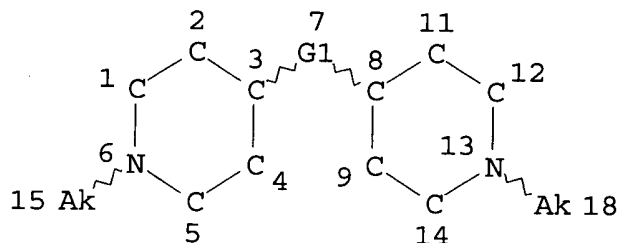
L11 242773 S CROSSLINK? OR CROSS?(2A)LINK?

L12 3 S L9 AND L11  
L13 6 S L9 OR L12  
L14 8 S L10 AND L11  
L15 5 S L14 NOT L13  
L16 27 S L10 NOT (L13 OR L15)

FILE 'REGISTRY' ENTERED AT 20:10:12 ON 11 DEC 2002

=> d l6 que stat

L1 STR



REP G1=(0-1) AK

NODE ATTRIBUTES:

DEFAULT MLEVEL IS ATOM

GGCAT IS UNS AT 15

GGCAT IS UNS AT 18

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

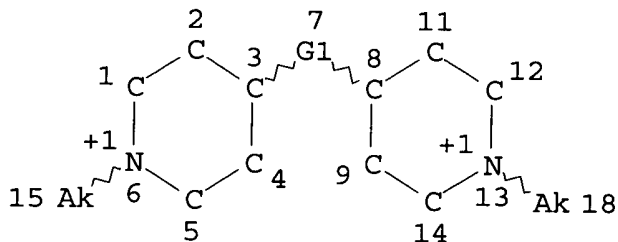
RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 15

STEREO ATTRIBUTES: NONE

L3 58 SEA FILE=REGISTRY SSS FUL L1

L4 STR



REP G1=(0-1) AK

NODE ATTRIBUTES:

CHARGE IS E+1 AT 6

CHARGE IS E+1 AT 13

DEFAULT MLEVEL IS ATOM

GGCAT IS UNS AT 15

GGCAT IS UNS AT 18

DEFAULT ECLEVEL IS LIMITED

## GRAPH ATTRIBUTES:

RSPEC I

NUMBER OF NODES IS 15

## STEREO ATTRIBUTES: NONE

L6 6 SEA FILE=REGISTRY SUB=L3 SSS FUL L4

100.0% PROCESSED 58 ITERATIONS

SEARCH TIME: 00.00.01

6 ANSWERS

=&gt; file zcaplus

FILE 'ZCAPLUS' ENTERED AT 20:11:06 ON 11 DEC 2002

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FILE COVERS 1907 - 11 Dec 2002 VOL 137 ISS 24

FILE LAST UPDATED: 10 Dec 2002 (20021210/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=&gt; d l13 1-6 cbib abs hitstr hitind

L13 ANSWER 1 OF 6 ZCAPLUS COPYRIGHT 2002 ACS

2002:866805 Preparation of glycol ethers. Morita, Takehiko (Nippon Shokubai Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002326969 A2 20021115, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-16208 20020124. PRIORITY: JP 2001-54956 20010228.

AB Glycol ethers are prepd. by reaction of oxiranes with OH-contg. compds. in the presence of polymer catalysts having hetero atoms contg. no bonds with H at positions excluding side chains. Ethanol was treated with ethylene oxide in the presence of a catalyst contg.

95:5 mol ratio of diallyldimethylammonium chloride-1,1,4,4-tetraallylpiperazinium dichloride copolymer at 100.degree. for 1 h to give monoethylene glycol monoethyl ether with 80.8% selectivity at 72.2% conversion.

IT **382592-34-9P**

(prepn. of glycol ethers)

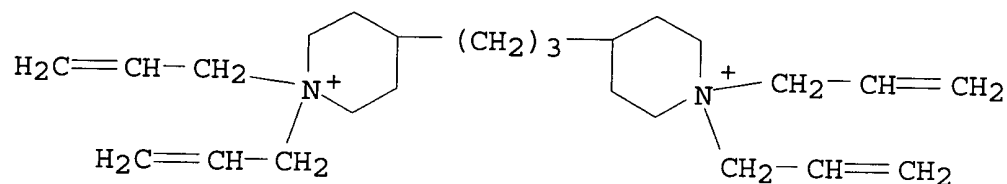
RN 382592-34-9 ZCAPLUS

CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-, dichloride, polymer with N,N-dimethyl-N-2-propenyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 382592-33-8

CMF C25 H44 N2 . 2 Cl

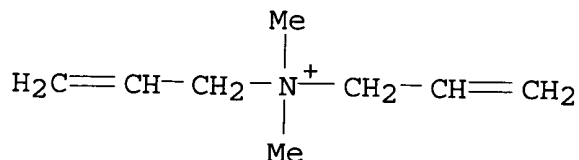


● 2 Cl<sup>-</sup>

CM 2

CRN 7398-69-8

CMF C8 H16 N . Cl



● Cl<sup>-</sup>

IC ICM C07C041-03

ICS B01J031-06; C07C043-11; C07C043-13; C07B061-00

CC 23-9 (Aliphatic Compounds)

IT 87079-48-9P **382592-34-9P** 402565-21-3P

(prepn. of glycol ethers)

L13 ANSWER 2 OF 6 ZCAPLUS COPYRIGHT 2002 ACS

2002:531239 Document No. 137:95523 Preparation of colorless glycols from oxiranes with heat-resistant polymer catalysts. Morita, Takehiko; Takematsu, Kenichi; Sugiyama, Yutaka (Nippon Shokubai Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2002201149 A2 20020716, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-204497 20010705. PRIORITY: JP 2000-337442 20001106.

AB Glycols are prepd. by treatment of oxiranes with H<sub>2</sub>O in the presence of org. polymer catalysts having heteroatoms in the main chains and/or **crosslinked** parts, but not H bonded to the heteroatoms. Thus, ethylene oxide was autoclaved at 120.degree. for 2 h with H<sub>2</sub>O and a catalyst prepd. from NaHCO<sub>3</sub> and 95:5 mol diallyldimethylammonium chloride-N,N,N',N'-tetraallyldipiperidylpropanium dichloride copolymer to give monoethylene glycol with 99.9% conversion and 94.2% selectivity.

IT **382592-34-9DP**, bicarbonate-exchanged  
(prepn. of colorless glycols from oxiranes with heat-resistant polymer catalysts)

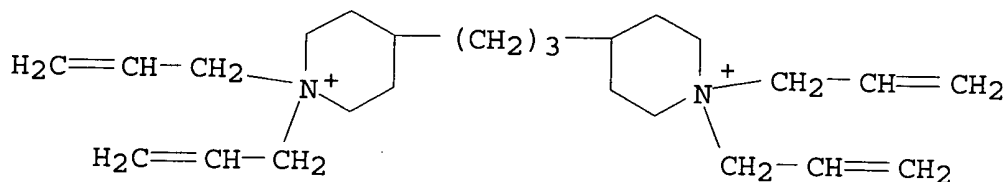
RN 382592-34-9 ZCAPLUS

CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-, dichloride, polymer with N,N-dimethyl-N-2-propenyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 382592-33-8

CMF C25 H44 N2 . 2 Cl

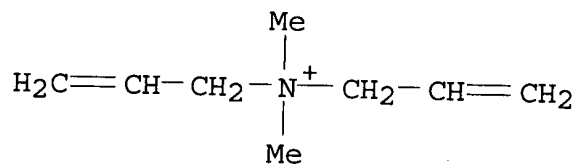


● 2 Cl<sup>-</sup>

CM 2

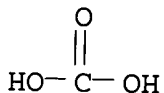
CRN 7398-69-8

CMF C8 H16 N . Cl



● Cl<sup>-</sup>

- IC ICM C07C029-10  
ICS C07C031-20; C07B061-00
- CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
- IT **382592-34-9DP**, bicarbonate-exchanged 402565-21-3DP,  
bicarbonate-exchanged  
(prepn. of colorless glycols from oxiranes with heat-resistant  
polymer catalysts)
- L13 ANSWER 3 OF 6 ZCAPLUS COPYRIGHT 2002 ACS  
2002:244693 Document No. 136:280439 **Crosslinked** polymers of  
quaternary ammonium compounds. Morita, Takehiko; Kubo, Takafumi  
(Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo  
Koho JP 2002097275 A2:20020402, 9 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 2000-229810 20000728. PRIORITY: JP 2000-218972  
20000719.
- AB The title polymers have good affinity for and penetration by various  
substances, soly. parameter .delta. 5-20, and molar vol. 20-300.  
Thus, diallyldimethylammonium chloride-N,N'-  
tetraallyldipiperidinypropanium dichloride copolymer was prepd.,  
treated with NaHCO<sub>3</sub>, and used as a catalyst in the prepn. of  
ethylene glycol from ethylene oxide.
- IT **406498-59-7P**  
(**crosslinked** polymers of quaternary ammonium compds.  
for catalysts)
- RN 406498-59-7 ZCAPLUS
- CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-,  
dichloride, polymer with N,N-dimethyl-N-2-propenyl-2-propen-1-  
aminium chloride, carbonate (9CI) (CA INDEX NAME)
- CM 1
- CRN 463-79-6
- CMF C H2 O3



CM 2

CRN 382592-34-9

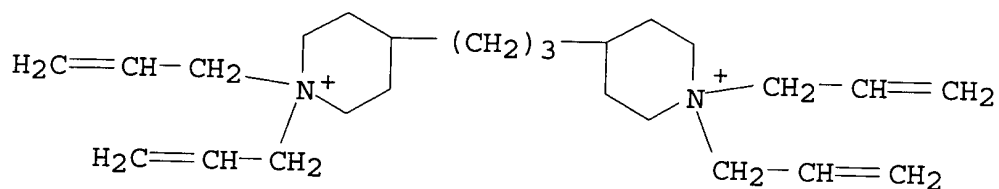
CMF (C25 H44 N2 . C8 H16 N . 3 Cl)x

CCI PMS

CM 3

CRN 382592-33-8

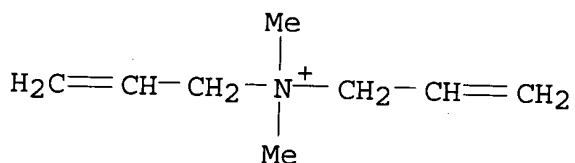
CMF C25 H44 N2 . 2 Cl

● 2 Cl<sup>-</sup>

CM 4

CRN 7398-69-8

CMF C8 H16 N . Cl

● Cl<sup>-</sup>

IT 382592-34-9P, Diallyldimethylammonium chloride-N,N'-tetraallyldipiperidinypropanium dichloride copolymer (crosslinked polymers of quaternary ammonium compds. for catalysts)

RN 382592-34-9 ZCAPLUS

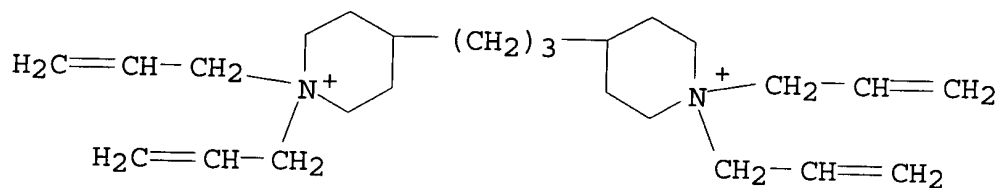
CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-, dichloride, polymer with N,N-dimethyl-N-2-propenyl-2-propen-1-

aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 382592-33-8

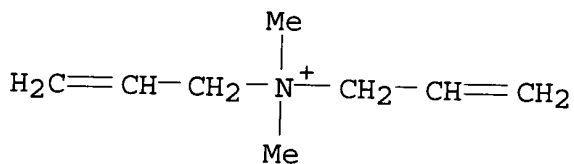
CMF C25 H44 N2 . 2 Cl

● 2 Cl<sup>-</sup>

CM 2

CRN 7398-69-8

CMF C8 H16 N . Cl

● Cl<sup>-</sup>

- IC ICM C08G083-00  
ICS B01J031-08; B01J047-00; C08G085-00  
CC 38-3 (Plastics Fabrication and Uses)  
Section cross-reference(s): 27  
IT Ring opening catalysts  
(**crosslinked** polymers of quaternary ammonium compds.  
for catalysts)  
IT Quaternary ammonium compounds, uses  
(polymers; **crosslinked** polymers of quaternary ammonium  
compds. for catalysts)  
IT 406498-59-7P 406498-60-0P  
(**crosslinked** polymers of quaternary ammonium compds.  
for catalysts)

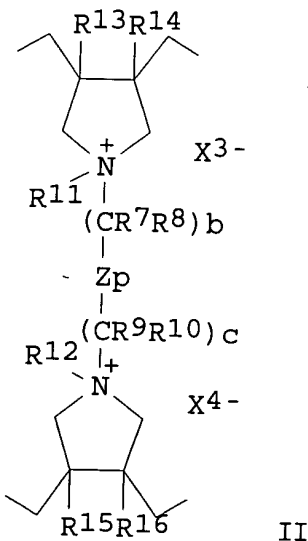
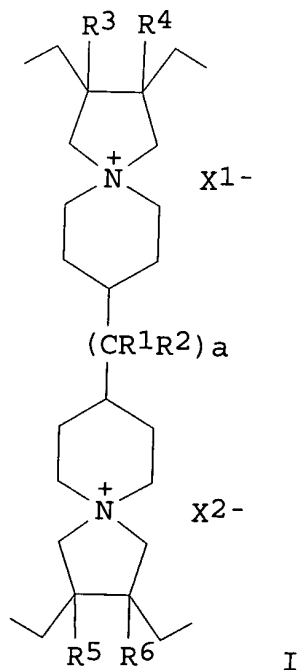


- IT 382592-34-9P, Diallyldimethylammonium chloride-N,N'-tetraallyldipiperidinypropanium dichloride copolymer 402565-21-3P  
(**crosslinked** polymers of quaternary ammonium compds. for catalysts)
- IT 107-21-1P, Ethylene glycol, processes 111-76-2P, Ethylene glycol monobutyl ether  
(**crosslinked** polymers of quaternary ammonium compds. for catalysts)
- IT 71-36-3, Butyl alcohol, reactions 75-21-8, Ethylene oxide, reactions  
(**crosslinked** polymers of quaternary ammonium compds. for catalysts)

L13 ANSWER 4 OF 6 ZCAPLUS COPYRIGHT 2002 ACS  
2002:172504 Document No. 136:217206 **Crosslinked** polymer,  
method for manufacturing it and use thereof. Hirano, Yoshiaki;  
Morita, Takehiko; Kubo, Takafumi; Yamamoto, Hiroshi; Takematsu,  
Kenichi; Sugiyama, Yutaka (Japan). U.S. Pat. Appl. Publ. US  
20020028887 A1 20020307, 37 pp. (English). CODEN: USXXCO.  
APPLICATION: US 2001-880876 20010615. PRIORITY: JP 2000-181265  
20000616; JP 2000-231370 20000726.

GI

*Priority documents*



AB The present invention is related to a **crosslinked** polymer excellent in ion exchange capacity and catalytic activity and in

resistance to thermal decompn. and widely applicable in various fields of use; a **crosslinking** agent which is suited for use as a raw material in the prodn. of **crosslinked** polymers; a method of producing **crosslinked** polymers; a method of producing a spherical particle which is suited for use in the prodn. of **crosslinked** polymers; a method of producing a hydroxy alkyl (meth)acrylate; and a method of producing glycols using the **crosslinked** polymers. This invention provides a **crosslinked** polymer having at least one **crosslink** structure and a tertiary amine structure and/or a quaternary ammonium salt structure, wherein at least one **crosslink** structure is represented by the following general formulas: I (R1, R2 = H, halo, C1-10 alkyl, or OH; R3-6 = H, halo, Me, or Et; X1-, X2- = halide, OH, or (in)org. acid anion; a = 0-10) or II [R7-10 = H, halo, C1-10 alkyl, or OH; R11, R12 = C1-10 alkyl; R13-16 = H, halo, Me, or Et; X3-, X4- = halide, OH, or (in)org. acid anion; b, c = 0-10; p = 0 or 1; b + c + p .gtoreq. 1; Z = NH, NMe, NH(CH2)3NH, NH(CH2)4NH, O, CH(OH), OCH2CMe2CH2O, O(CH2)2(OCH2CH2)nO, 1,4-piperazinylene, 3-methyl-2,6-pyridylene, 4-methyl-2,6-pyridylene, 2,6-pyridylene, or 2,5-pyridylene; n .gtoreq. 0]. A typical polymer was manufd. by polymn. of 8.35 g diallyldimethylammonium chloride with 1.65 g N,N,N',N'-tetraallyl-4,4'-(1,3-propanediyl)bis(piperidinium chloride) in the presence of 2,2'-azobis(2-amidinopropane) dihydrochloride in water 4 h at 55.degree. and 2 h at 75.degree..

IT 382592-34-9P 402565-23-5P, Diallyldimethylammonium chloride-1,1,4,4-tetraallyldipiperidyl dichloride copolymer (**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)

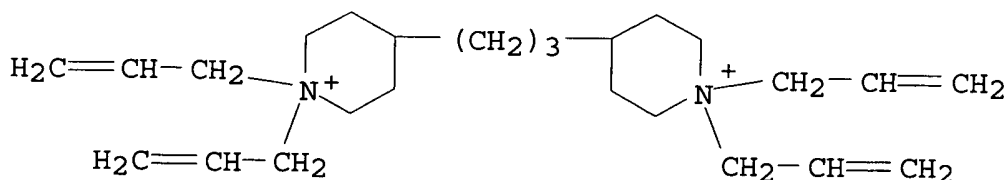
RN 382592-34-9 ZCAPLUS

CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-, dichloride, polymer with N,N-dimethyl-N-2-propenyl-2-propen-1-aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 382592-33-8

CMF C25 H44 N2 . 2 Cl

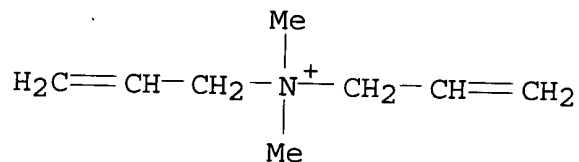


2 Cl-

CM 2

CRN 7398-69-8

CMF C8 H16 N . Cl

● Cl<sup>-</sup>

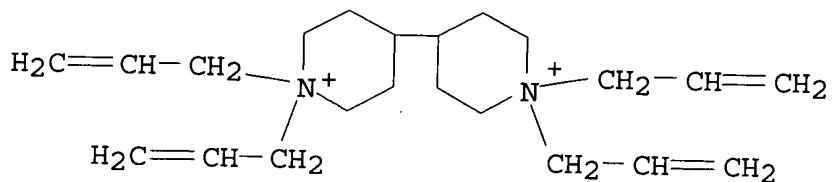
RN 402565-23-5 ZCAPLUS

CN 4,4'-Bipiperidinium, 1,1,1,1-tetra-2-propenyl-, dichloride, polymer  
with N,N-dimethyl-N-2-propenyl-2-propen-1-aminium chloride (9CI)  
(CA INDEX NAME)

CM 1

CRN 402565-22-4

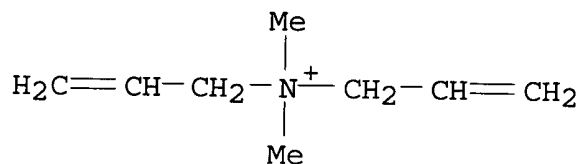
CMF C22 H38 N2 . 2 Cl

● 2 Cl<sup>-</sup>

CM 2

CRN 7398-69-8

CMF C8 H16 N . Cl

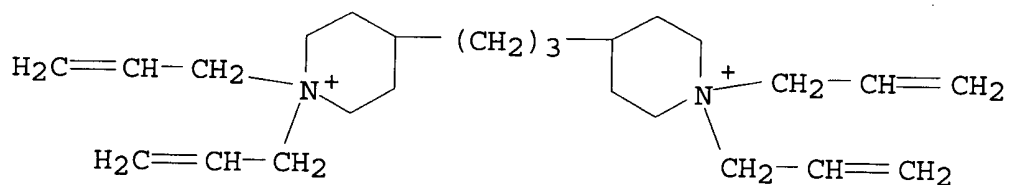
● Cl<sup>-</sup>

IT 382592-33-8P

(**crosslinker**; **crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)

RN 382592-33-8 ZCAPLUS

CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-, dichloride (9CI) (CA INDEX NAME)

● 2 Cl<sup>-</sup>

IC ICM C08F126-08

ICS C08F008-00

NCL 525327100

CC 35-4 (Chemistry of Synthetic High Polymers)

ST **crosslinked** quaternary ammonium polymer ion exchanger;  
heat resistant **crosslinked** quaternary ammonium polymer;  
tetraallylpropanediylbispiperidinium chloride  
diallyldimethylammonium chloride copolymer manuf; piperidinium  
pyrrolidinium spiro **crosslinked** polymer manuf; catalyst  
**crosslinked** quaternary ammonium polymer

IT Anion exchangers

Esterification catalysts

Heat-resistant materials

Hydration catalysts

(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)

IT Quaternary ammonium compounds, preparation

- (polymers; **crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)
- IT 25584-83-2P, Hydroxypropyl acrylate  
(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for catalysts for hydroxypropylation of acrylic acid)
- IT 75-56-9, Propylene oxide, reactions  
(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for catalysts for hydroxypropylation of acrylic acid)
- IT 112-34-5P, Diethylene glycol monobutyl ether 143-22-6P, Triethylene glycol monobutyl ether  
(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for catalysts hydration of ethylene oxide)
- IT 107-21-1P, Ethylene glycol, preparation 111-76-2P, Ethylene glycol monobutyl ether  
(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for catalysts hydration of ethylene oxide)
- IT 71-36-3, Butanol, reactions 75-21-8, Ethylene oxide, reactions  
(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for catalysts hydration of ethylene oxide)
- IT 123-75-1DP, Pyrrolidine, **crosslinked** polymers  
106369-57-7P, Diallyldimethylammonium chloride-triallylamine hydrochloride copolymer **382592-34-9P** 402565-20-2P  
402565-21-3P, Diallyldimethylammonium chloride-N,N,N',N'-tetraallyl-1,4-diaminobutane dihydrochloride copolymer **402565-23-5P**, Diallyldimethylammonium chloride-1,1,4,4-tetraallyldipiperidyl dichloride copolymer  
(**crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)
- IT 402565-19-9P  
(**crosslinker** precursor; **crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)
- IT 107-05-1, Allyl chloride 16898-52-5, 1,3-Bis(4-piperidyl)propane  
(**crosslinker** precursor; **crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)
- IT **382592-33-8P**  
(**crosslinker**; **crosslinked** quaternary ammonium polymers with good thermal decompn. resistance for ion exchangers and reaction catalysts)

Koho JP 2001354777 A2 20011225, 8 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 2000-181265 20000616.

AB The particles are manufd. by using media contg. viscous fluids  
contg. liq. paraffins and/or silicone oil. Thus,  
diallyldimethylammonium chloride was polymd. with  
tetraallyldipiperidinypropanium chloride in toluene/liq. paraffin  
mixture, washed, and dried to give a copolymer particles having  
particle size 0.2 mm at gel yield 92.8%.

IT **382592-34-9P**  
(manuf. of spherical polymer particles without aggregation)

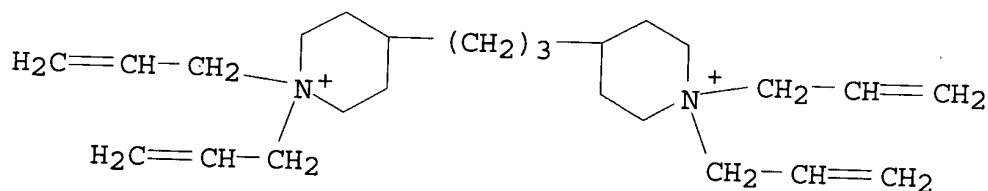
RN 382592-34-9 ZCAPLUS

CN Piperidinium, 4,4'-(1,3-propanediyl)bis[1,1-di-2-propenyl-,  
dichloride, polymer with N,N-dimethyl-N-2-propenyl-2-propen-1-  
aminium chloride (9CI) (CA INDEX NAME)

CM 1

CRN 382592-33-8

CMF C25 H44 N2 . 2 Cl

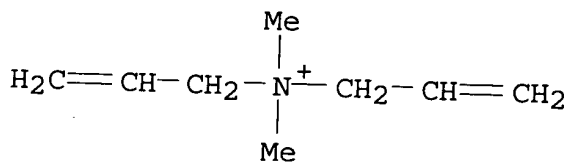


● 2 Cl<sup>-</sup>

CM 2

CRN 7398-69-8

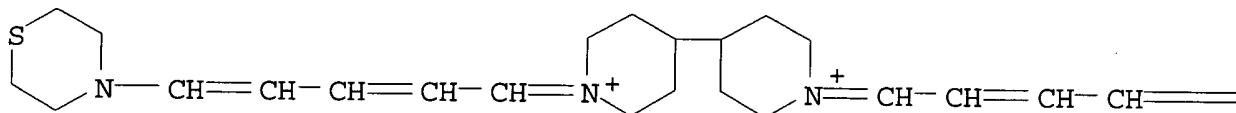
CMF C8 H16 N . Cl



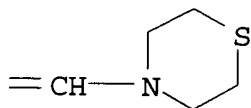
Cl<sup>-</sup>

- IC ICM C08J003-12  
ICS C08L101-00
- CC 37-3 (Plastics Manufacture and Processing)
- IT 87079-48-9P 106369-57-7P, Diallyldimethylammonium  
chloride-triallylamine hydrochloride copolymer **382592-34-9P**  
(manuf. of spherical polymer particles without aggregation)
- L13 ANSWER 6 OF 6 ZCAPLUS COPYRIGHT 2002 ACS  
2001:664445 Document No. 135:233958 High-density optical recording  
materials using streptocyanine dyes. Morishima, Shinichi; Usami,  
Yoshihisa; Komori, Noboru (Fuji Photo Film Co., Ltd., Japan). Jpn.  
Kokai Tokkyo Koho JP 2001246851 A2 20010911, 14 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 2000-60609 20000306.
- AB In the materials having layers recordable by irradiation of  
.ltoreq.550-nm laser light, the layers contain dyes  
R1R2N+: (L1L2)n1:L3NR3R4.M1m1 and/or R5R6N+: (L4L5)n2:L6NR7QNR8L7:(L8L  
9)n3:N+R9R10.M2m2 (L1-L9 = methine; n1-n3 = 0-4; R1-R10 = alkyl,  
aryl, heterocyclic group; m1, m2 = 0-10; Q = divalent group). The  
materials show high reflectivity, sensitivity, and modulation.
- IT **359429-92-8**  
(high-d. optical recording materials contg. streptocyanine dyes  
for .ltoreq.550-nm laser light)
- RN 359429-92-8 ZCAPLUS
- CN 4,4'-Bipiperidinium, 1,1'-bis[5-(4-thiomorpholinyl)-2,4-  
pentadienylidene]-, diiodide (9CI) (CA INDEX NAME)

PAGE 1-A

● 2 I<sup>-</sup>

PAGE 1-B



- IC ICM B41M005-26  
ICS G11B007-24
- CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)
- IT 1611-78-5 2506-78-7 2506-80-1 7163-49-7 359429-78-0

359429-82-6 359429-85-9 359429-87-1 359429-90-6  
359429-92-8

(high-d. optical recording materials contg. streptocyanine dyes  
for .ltoreq.550-nm laser light)

=> d l15 1-5 cbib abs hitstr hitind

L15 ANSWER 1 OF 5 ZCAPLUS COPYRIGHT 2002 ACS

1992:174893 Document No. 116:174893 Synthesis of multifunctional  
copolyamides with both cyclobutane ring and conjugated double bond  
in the main chain. Nishikubo, Tadatomi; Iizawa, Takashi; Shiozaki,  
Yasunori; Koito, Tsutomu (Fac. Eng., Kanagawa Univ., Yokohama, 221,  
Japan). Journal of Polymer Science, Part A: Polymer Chemistry,  
30(3), 449-59 (English) 1992. CODEN: JPACEC. ISSN: 0887-624X.  
AB Copolyamides contg. both cyclobutane rings and conjugated double  
bonds in the main chain were prepd. by polycondensation of  
1,3-di(4-piperidyl)propane (I) with .beta.-truxinate (II),  
di(p-nitrophenyl) p-phenylenebisacrylate (III), di(p-nitrophenyl)  
p-phenylenebis(.alpha.-cyanoacrylate) (IV), and di(p-nitrophenyl)  
p-phenylenebis(.alpha.-cyanobutadienecarboxylate) (V) in aprotic  
polar solvents at room temp. Reduced viscosity of the copolyamide  
was strongly affected by the reaction process, the molar ratio of  
two ester monomers, and reaction time. The copolyamide with the  
highest viscosity was prepd. by the reaction of I with 70-50 mol% II  
for 24 h followed by the polycondensation of the resulting precursor  
with 30-50 mol% III for 24-96 h. Although copolyamide with high  
viscosity was not obtained by polycondensation with II and IV,  
copolyamide with relatively high viscosity was obtained by reaction  
with II and V. The soly. of copolyamides decreased gradually with  
increasing III, IV, and V units in the copolymers. The copolyamides  
**crosslinked** upon irradiation with 313 or 365 nm light and  
decompd. upon irradiation with 254 nm light. The photochem. property of  
these copolyamides can be controlled by the selection of wavelength  
of the photoirradiation.

IT 139913-25-0P 139913-26-1P 139913-27-2P

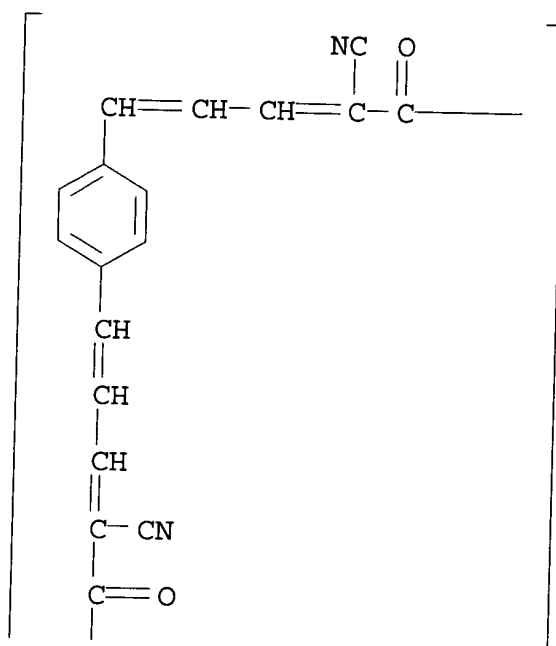
(prepn. and properties of)

RN 139913-25-0 ZCAPLUS

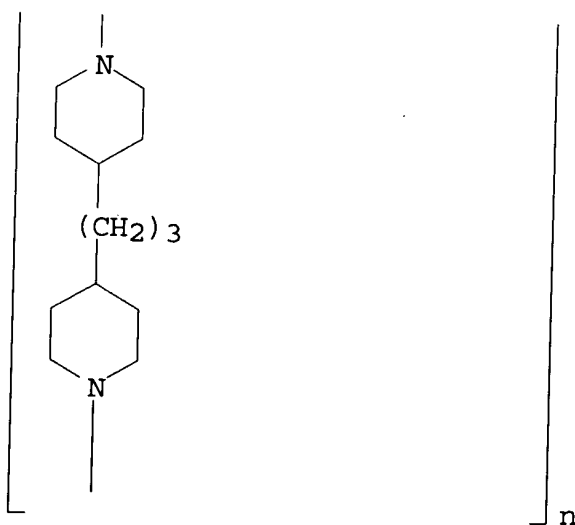
CN Poly[1,4-piperidinediyl-1,3-propanediyl-4,1-piperidinediyl(2-cyano-1-  
oxo-2,4-pentadiene-1,5-diyl)-1,4-phenylene(4-cyano-5-oxo-1,3-  
pentadiene-1,5-diyl)] (9CI) (CA INDEX NAME)



PAGE 1-A

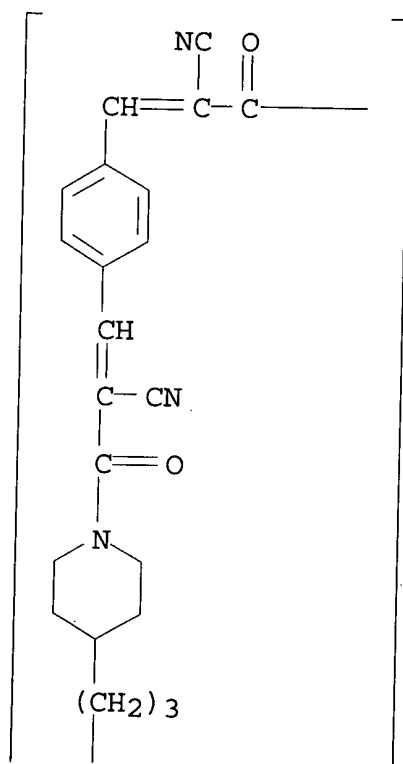


PAGE 2-A

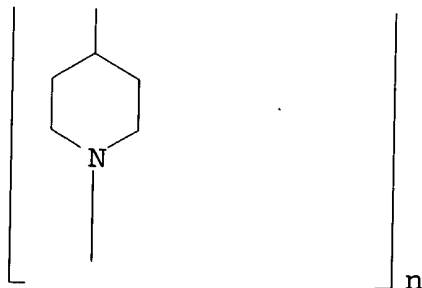


CN Poly[1,4-piperidinediyl-1,3-propanediyl-4,1-piperidinediyl(2-cyano-1-oxo-2-propene-1,3-diyl)-1,4-phenylene(2-cyano-3-oxo-1-propene-1,3-diyl)] (9CI) (CA INDEX NAME)

PAGE 1-A

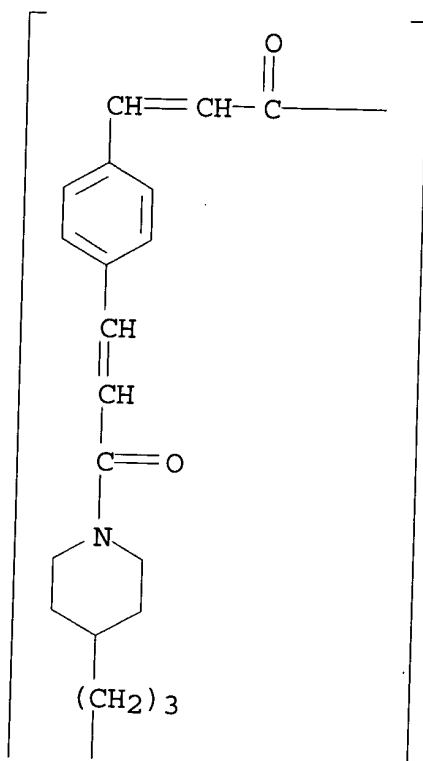


PAGE 2-A

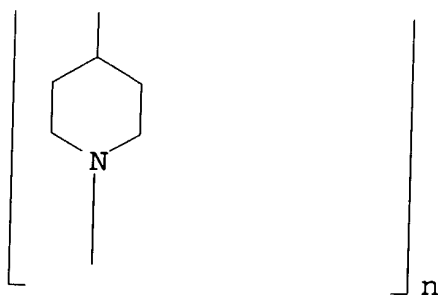


RN 139913-27-2 ZCAPLUS  
 CN Poly[1,4-piperidinediyl-1,3-propanediyl-4,1-piperidinediyl(1-oxo-2-propene-1,3-diyl)-1,4-phenylene(3-oxo-1-propene-1,3-diyl)] (9CI)  
 (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



CC 35-5 (Chemistry of Synthetic High Polymers)  
 IT **Crosslinking**  
 Polymer degradation  
 (photochem., of multifunctional polyamides with cyclobutane ring  
 and conjugated double bond in main chain)  
 IT 118572-25-1P 118760-13-7P 139913-25-0P  
 139913-26-1P 139913-27-2P 139913-36-3P

139913-37-4P 139913-38-5P 139975-34-1P 139975-35-2P  
 139975-36-3P 139975-37-4P 139975-38-5P 139975-39-6P  
 139975-40-9P 140223-03-6P 140223-04-7P 140223-09-2P  
 (prepn. and properties of)

L15 ANSWER 2 OF 5 ZCAPLUS COPYRIGHT 2002 ACS

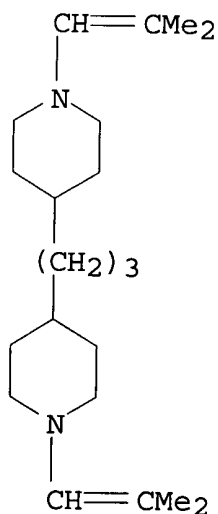
1989:555039 Document No. 111:155039 Polyurethane resin compositions having thixotropy. Nagahisa, Seiji; Pponda, Hiroshi; Fukuda, Keisuke; Asai, Seiji; Sugita, Toshio (Mitsui Toatsu Chemicals, Inc., Japan). Jpn. Kokai Tokkyo Koho JP 01024851 A2 19890126 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-179221 19870720.

AB The title compns., useful for coatings, adhesives, sealants, etc., contain polyurethanes, hydrophobic colloidal silica, and aliph. or alicyclic polyisocyanate adducts with mono- and/or diamines. Dibutylamine 3.9, Jeffamine D-400 6, and a 5.62% NCO-contg. HDI dioctyl phthalate (I) soln. 48 parts were treated in I in the presence of CaCO<sub>3</sub>, Ti oxide, and Irganox 1010, then mixed in xylene with a 2600:1802:598 poly(oxypropylene glycol)-poly(oxypropylene triol)-2,4-tolylene diisocyanate copolymer 445, 60% 4,4'-dipiperidylpropane-isobutylaldehyde-o-tolyl isocyanate (1:2:2 mol) adduct cellosolve acetate soln. 98, and HDK H-20 (colloidal silica) 85 parts to give a one-liq. polyurethane resin having good thixotropic properties and storage stability.

IT 38233-98-6DP, tolyl isocyanate adduct, reaction products with water and poly(oxyalkylene)-polyols and polyisocyanates (prepn. of, contg. hydrophobic silica and amine-polyisocyanate adducts, with improved thixotropy)

RN 38233-98-6 ZCAPLUS

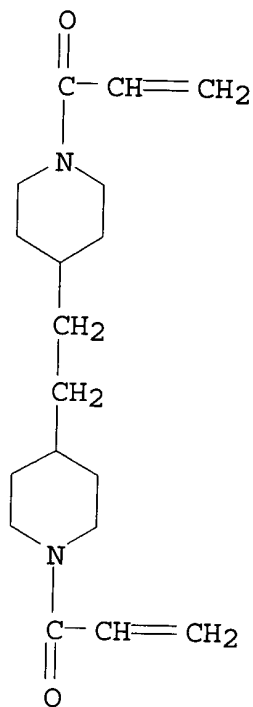
CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)]- (9CI)  
 (CA INDEX NAME)



IC ICM C08L075-04

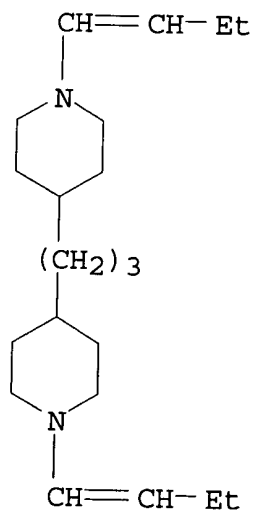
- ICS C08K003-36; C08K005-16; C09D003-72; C09J003-16  
 CC 37-3 (Plastics Manufacture and Processing)  
 ST polyurethane blend colloidal silica thixotropy; polyisocyanate amine  
 adduct blend polyurethane; polyoxyalkylene polyurethane aminolactam  
**crosslinker**  
 IT Fatty acids, compounds  
 (tall-oil, adducts with piperazine and cyclohexanones,  
**crosslinking** agents, for polyurethanes with improved  
 thixotropy)  
 IT 67-63-0DP, 2-Propanol, reaction products with polyoxyalkylene-  
 polyols and polyisocyanates 101-68-8DP, reaction products with  
 poly(oxyalkylene)-polyols and aminolactams or eneamines  
 110-85-0DP, Piperazine, adducts with fatty acids and cyclohexanones  
 and water, reaction products with poly(oxyalkylene)-polyols and  
 polyisocyanates 584-84-9DP, reaction products with  
 poly(oxyalkylene)-polyols and aminolactams or eneamines  
 614-68-6DP, reaction products with water and polyoxalkylenes-polyols  
 873-94-9DP, 3,3,5-Trimethylcyclohexanone, adducts with fatty acids  
 and piperazine and water, reaction products with  
 poly(oxyalkylene)-polyols and polyisocyanates 4098-71-9DP,  
 reaction products with poly(oxyalkylene)-polyols and aminolactams or  
 eneamines 19244-91-8DP, iso-Pr alc.-TDI adducts, reaction products  
 with water and poly(oxyalkylene)-polyols and polyisocyanates  
 19244-91-8DP, reaction products with water and poly(oxyalkylene)-  
 polyols and polyisocyanates 25322-69-4DP, reaction products with  
 polyisocyanates and aminolactams or enamines 25322-69-4DP, triol  
 derivs., reaction products with polyisocyanates and aminolactams or  
 enamines **38233-98-6DP**, tolyl isocyanate adduct, reaction  
 products with water and poly(oxyalkylene)-polyols and  
 polyisocyanates  
 (prepn. of, contg. hydrophobic silica and amine-polyisocyanate  
 adducts, with improved thixotropy)  
 L15 ANSWER 3 OF 5 ZCAPLUS COPYRIGHT 2002 ACS  
 1989:4031 Document No. 110:4031 Development of polyacrylamide gels  
 that improve the separation of proteins and their detection by  
 silver staining. Hochstrasser, Denis F.; Patchornik, Abraham;  
 Merril, Carl R. (Biochem. Genet. Sect., Natl. Inst. Ment. Health,  
 Bethesda, MD, 20892, USA): Analytical Biochemistry, 173(2), 412-23  
 (English) 1988. CODEN: ANBCA2. ISSN: 0003-2697.  
 AB Background staining that is assocd. with Ag detection of proteins  
 and nucleic acids in polyacrylamide gels was due mostly to the amide  
 groups in methylenebisacrylamide, a commonly used gel  
**crosslinker**. To reduce this background staining, 8 existing  
**crosslinking** agents were tested; all were unsuitable. Six  
 new **crosslinking** agents were synthesized and tested. Of  
 these, diacrylylpiperazine provided increased phys. strength,  
 improved electrophoretic sepn. of proteins, and Ag staining  
 detection of proteins with reduced background stain.  
 IT **117950-90-0**  
 (**crosslinking** agent, in gel electrophoresis of  
 proteins, silver staining in relation to)

RN 117950-90-0 ZCAPLUS

CN Piperidine, 4,4'-(1,2-ethanediyl)bis[1-(1-oxo-2-propenyl)- (9CI)  
(CA INDEX NAME)

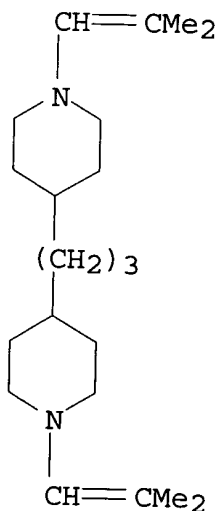
- CC 9-7 (Biochemical Methods)
- ST protein sepn gel electrophoresis **crosslinker**; silver staining protein detection **crosslinker**
- IT Proteins, analysis  
(detection of, in blood plasma by silver staining in polyacrylamide gels, **crosslinking** agents effect on)
- IT **Crosslinking** agents  
(for protein detection by gel electrophoresis with silver staining)
- IT Staining, biological  
(of proteins of blood plasma with silver, in polyacrylamide gels, **crosslinking** agents effect on)
- IT Blood analysis  
(proteins detection in, by silver staining in polyacrylamide gels, **crosslinking** agents effect on)
- IT Electrophoresis and Ionophoresis  
(gel, two-dimensional, of proteins of blood plasma, silver staining in, **crosslinking** agents effect on)
- IT 110-26-9 868-63-3, Dihydroxyethylenebisacrylamide 2274-11-5, Ethylene diacrylate 2883-45-6 6342-17-2, Diacrylylpiperazine 7150-41-6 10405-38-6 26570-48-9 58477-85-3 60984-57-8, Bisacrylylcystamine 117950-86-4 117950-87-5 117950-88-6,

- 1,1-Dimethylethylenebisacrylamide 117950-89-7,  
 2,2-Dimethylpropylenebisacrylamide 117950-90-0  
 (**crosslinking** agent, in gel electrophoresis of  
 proteins, silver staining in relation to)  
 IT 7440-22-4, Silver, uses and miscellaneous  
 (staining by, of proteins of blood plasma in polyacrylamide gels,  
**crosslinking** agents effect on)
- L15 ANSWER 4 OF 5 ZCAPLUS COPYRIGHT 2002 ACS  
 1982:407932 Document No. 97:7932 Lacquers and other coating materials  
 and their application. Griebisch, Eugen; Brinkmann, Bernd (Schering  
 A.-G. , Fed. Rep. Ger.). Ger. DE 2167141 C1 19820318, 6 pp.  
 (German). CODEN: GWXXAW. APPLICATION: DE 1971-2167141 19710406.  
 AB The title compns., which are moisture-curable, contain blocked  
 polyisocyanates and enamines prepd. from diamines. Thus, a mixt. of  
 10 parts enamine [82085-13-0] from 1 mol  
 4,4'-trimethylenedipiperidine and 2 mol isobutyraldehyde and 19.6  
 parts adduct [82056-16-4] of trimethylolpropane 1, TDI 3, and  
 nonylphenol 3 mols as a 50% soln. in EtOCH<sub>2</sub>CH<sub>2</sub>OAc could be stored in  
 the absence of moisture for 9 mo without gelling, but gave a coating  
 curing at 60% relative humidity to a tack-free state in 20 min.  
 IT 82085-13-0  
 (coatings, contg. blocked polyisocyanates, moisture-curable)  
 RN 82085-13-0 ZCAPLUS  
 CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(1-butenyl)- (9CI) (CA  
 INDEX NAME)



- IC C09D003-72  
 CC 42-10 (Coatings, Inks, and Related Products)  
 ST enamine polyisocyanate coating; isocyanate blocked dienamine  
 coating; **crosslinking** moisture coating; piperidine enamine  
 deriv coating; butyraldehyde enamine deriv coating  
 IT **Crosslinking**

- (by moisture, of dienamine-blocked polyisocyanate coatings)
- IT 41423-46-5 82056-17-5 82085-12-9 **82085-13-0**  
(coatings, contg. blocked polyisocyanates, moisture-curable)
- L15 ANSWER 5 OF 5 ZCAPLUS COPYRIGHT 2002 ACS  
1978:106282 Document No. 88:106282 Adhering plasticizer-containing plastics of poly(vinyl chloride) or its mixed polymers. Burba, Christian; Volland, Hans Guenter; Esper, Norbert (Schering A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2630013 19780112, 16 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1976-2630013 19760703.
- AB Adhesiveness to plasticized PVC [9002-86-2] was imparted to **crosslinked** adipic acid-diethylene glycol-ethylene glycol-TDI copolymer (I) [9046-11-1] adhesives by addn. of .ltoreq.15% (based on I) Schiff base (0.3-1.4 azomethyne groups per 100 g compd.) and(or) enamine (0.3-1.4 enamine groups per 100 g compd.) to I. Thus, plasticized PVC objects were bonded together with a mixt. contg. 1:1 EtOAc-Me<sub>2</sub>CO-I soln. 20, 20% CH<sub>2</sub>Cl<sub>2</sub>-4,4',4''-triisocyanatotriphenylmethane soln. 10, and [MeC(CH<sub>2</sub>CHMe<sub>2</sub>):N(CH<sub>2</sub>)<sub>3</sub>]<sub>2</sub> (II) [3167-31-5] 1% to give a joint with strength 2.7-5.3 kg/cm at room temp., compared with 0.8 kg/cm for a similar joint in which the adhesive did not contain II.
- IT **38233-98-6**  
(adhesives contg. polyester polyurethanes and, for plasticized PVC)
- RN 38233-98-6 ZCAPLUS
- CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)]- (9CI)  
(CA INDEX NAME)



- IC C08J005-12
- CC 36-6 (Plastics Manufacture and Processing)
- IT 3167-31-5 **38233-98-6** 54688-30-1 60307-45-1  
65829-97-2 65852-52-0 65852-53-1 65852-54-2 65852-55-3  
65852-56-4 65852-57-5 65852-58-6



(adhesives contg. polyester polyurethanes and, for plasticized PVC)

IT 9046-11-1

(**crosslinked**, adhesives contg. enamines or Schiff bases and, for plasticized PVC)

=> d l16 1-27 cbib abs hitstr hitrn

↓↓↓ pretty junky  
from here on

L16 ANSWER 1 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

2002:847940 Document No. 137:354391 Photosensitizing methine dyes.  
Takashima, Masanobu (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai  
Tokkyo Koho JP 2002322381 A2 20021108, 11 pp. (Japanese). CODEN:  
JKXXAF. APPLICATION: JP 2001-125704 20010424.

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The invention relates to methine dyes I (R1, R2 = aliph., arom.; R3-6 = aliph.; L1-4 = methine; R7, R8 = H, aliph., arom., hetero ring; Q = single linkage, divalent linkage; Z1, Z2 = benzene ring; X- = anion; m, n = 1-3) and II (R11-14 = aliph., arom.; L11-14 = same as L1-4; R15, R16 = same as R7 and R8; Q = same as above; Z11, Z12 = same as Z1, Z2; X-, m, n = same as above), useful for photog., electrophotog., optical disks, etc. Thus, an anilino compd. III was reacted with piperazine and treated with NH4PF6 to give I (R1, R2 = heptyl; R3-6 = Me; Z1, Z2 = SO2Me-substituted benzene ring; L1-4 = CH; m, n = 1; Q, R7, R8 = forming a piperazine ring; X = PF6 ) in a 64% yield.

IT 474510-88-8P

(photosensitizing bismethine dyes having indole or imidazoquinoxaline structures)

RN 474510-88-8 ZCAPLUS

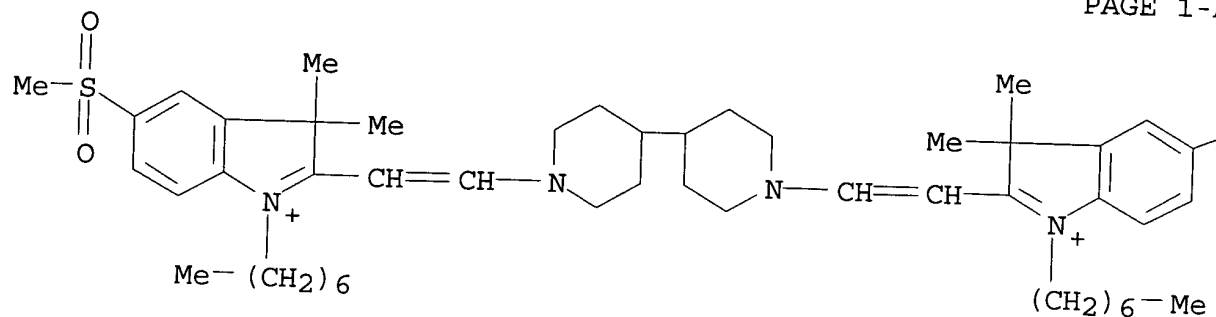
CN INDEX NAME NOT YET ASSIGNED

CM 1

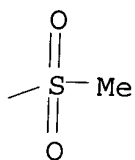
CRN 474510-87-7

CMF C50 H76 N4 O4 S2

PAGE 1-A



PAGE 1-B

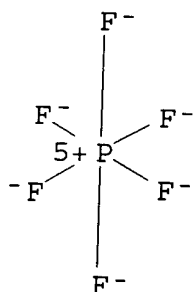


CM 2

CRN 16919-18-9

CMF F6 P

CCI CCS



IT 474510-88-8P

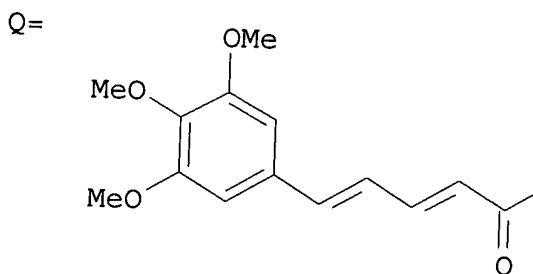
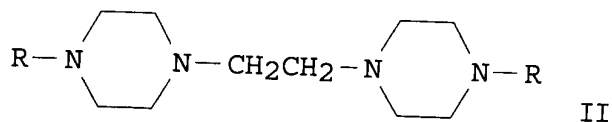
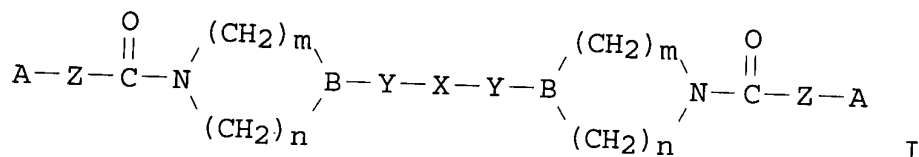
(photosensitizing bismethine dyes having indole or imidazoquinoxaline structures)

L16 ANSWER 2 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1999:549256 Document No. 131:170370 Preparation of N-acyl cyclic amine  
 compounds as inhibitors of IgE production. Ishiwata, Hiroyuki;  
 Sato, Seiichi; Kabeya, Mototsugu; Oda, Soichi; Hattori, Yukio; Suda,

Makoto; Shibasaki, Manabu; Nakao, Hiroshi; Nagoya, Takao (Kowa Co., Ltd., Japan). PCT Int. Appl. WO 9942446 A1 19990826, 83 pp.

DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1999-JP659 19990216. PRIORITY: JP 1998-37650 19980219.

GI



AB Cyclic amine amides such bis(N-acylpiperazine), bis(N-acylpiperidine), and bis(N-acyl-1,4-diazepine) compds. represented by general formula [I; wherein A represents an optionally substituted alicyclic, arom., or heterocyclic compd.; B represents nitrogen or CH; X represents optionally substituted lower alkylene or optionally substituted divalent residue of alicyclic, arom., or heterocyclic compd.; Y represents a single bond, lower alkylene, NH, lower alkylimino; Z represents CH:CH, C.tplbond.C, (CH:CH)<sub>2</sub>, C.tplbond.CCH:CH, CH:CHC.tplbond.C, or an optionally substituted divalent residue of benzene, pyridine, pyrimidine, or pyrazine; and m and n are each an integer of 1 to 4] are prepd. Because of having

an excellent IgE antibody prodn. inhibitory effect, these compds. are useful as antiallergic agents for the treatment of allergic immune diseases such as asthma, atopic dermatitis, allergic rhinitis, inflammatory colon diseases, contact skin diseases, and allergic eye diseases. Thus, (E,E)-5-(3,4,5-trimethoxyphenyl)-2,4-pentadienoic acid was treated with oxalyl chloride in DMF /CH<sub>2</sub>Cl<sub>2</sub> at room temp. for 30 min and then condensed with 1,3-bis(piperazin-1-yl)propane (II; R = H) tetrahydrochloride in the presence of diisopropylethylamine in CH<sub>2</sub>Cl<sub>2</sub> to give II (R = Q), which at 10<sup>-6</sup> M inhibited by 100% the prodn. of IgE in B cell from mouse (Balb/C) spleen.

IT 239066-11-6P 239066-12-7P 239066-13-8P  
239066-18-3P 239066-19-4P 239066-22-9P  
239066-23-0P 239066-24-1P 239066-25-2P

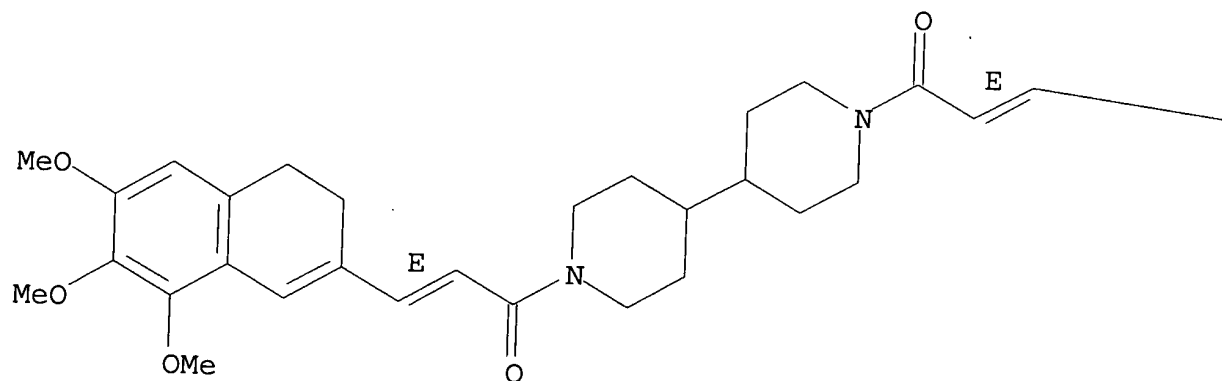
(prepn. of N-acyl cyclic amine compds. as inhibitors of IgE prodn. for treatment and prevention of allergic immune diseases)

RN 239066-11-6 ZCAPLUS

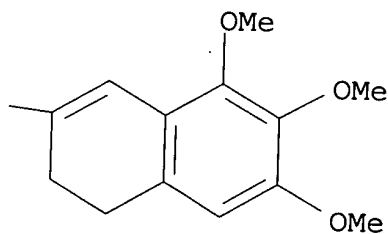
CN 4,4'-Bipiperidine, 1,1'-bis[(2E)-3-(3,4-dihydro-6,7,8-trimethoxy-2-naphthalenyl)-1-oxo-2-propenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



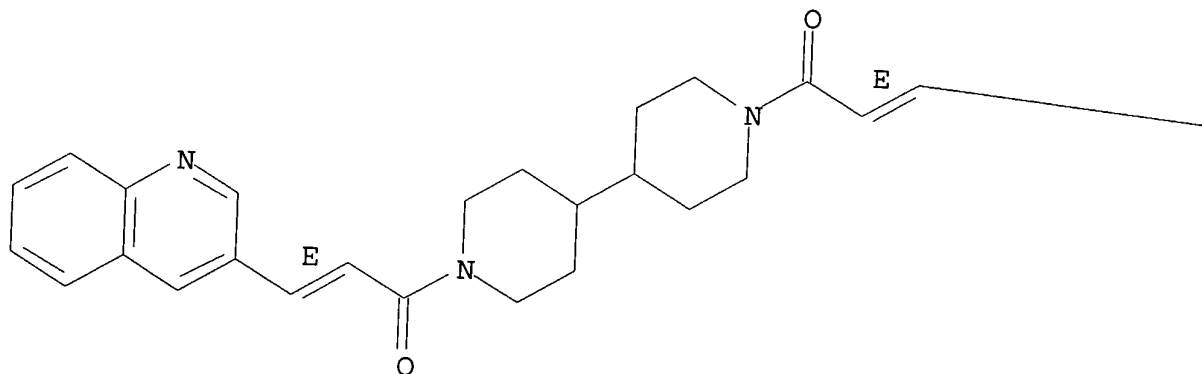
RN 239066-12-7 ZCAPLUS

CN 4,4'-Bipiperidine, 1,1'-bis[(2E)-1-oxo-3-(3-quinolinyl)-2-propenyl]-

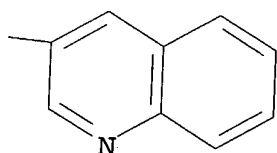
(9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

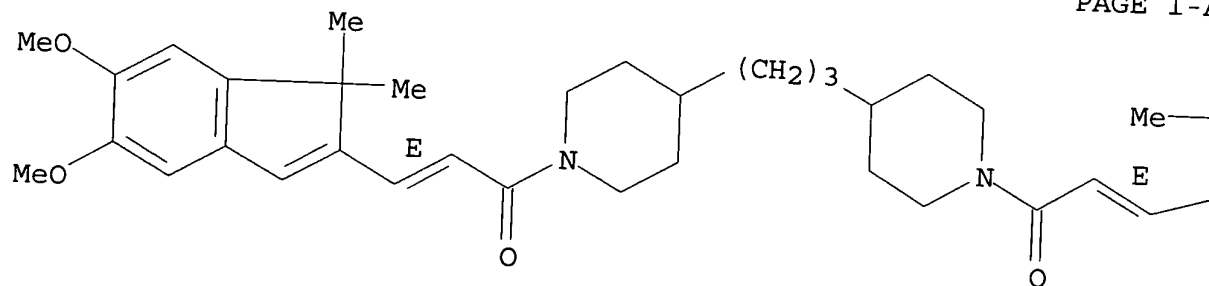


RN 239066-13-8 ZCAPLUS

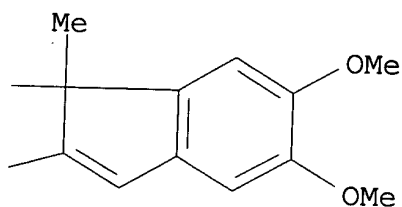
CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-[(2E)-3-(5,6-dimethoxy-1,1-dimethyl-1H-inden-2-yl)-1-oxo-2-propenyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



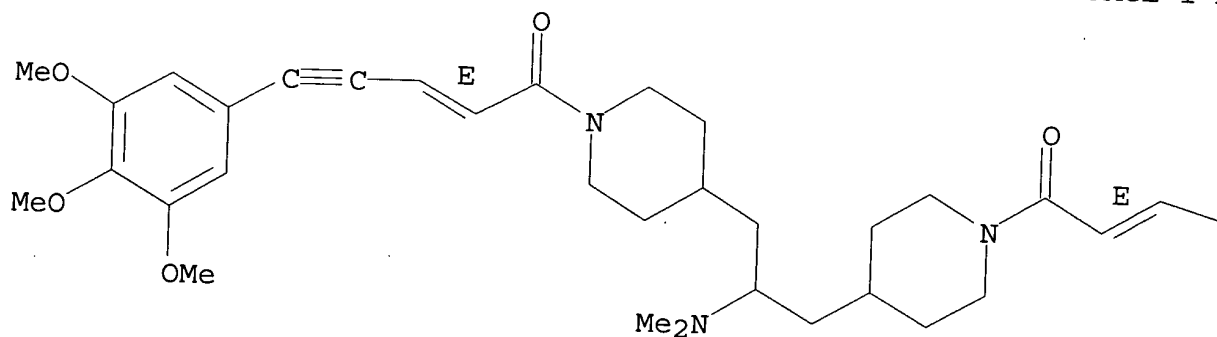
PAGE 1-B



RN 239066-18-3 ZCAPLUS  
 CN 4-Piperidineethanamine, N,N-dimethyl-1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-.alpha.-[[1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-4-piperidinyl]methyl]-, dihydrochloride (9CI) (CA INDEX NAME)

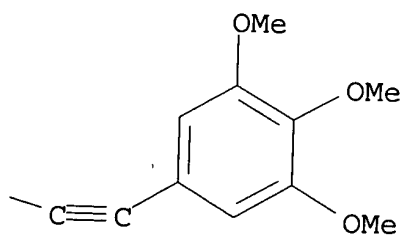
Double bond geometry as shown.

PAGE 1-A



● 2 HCl

PAGE 1-B

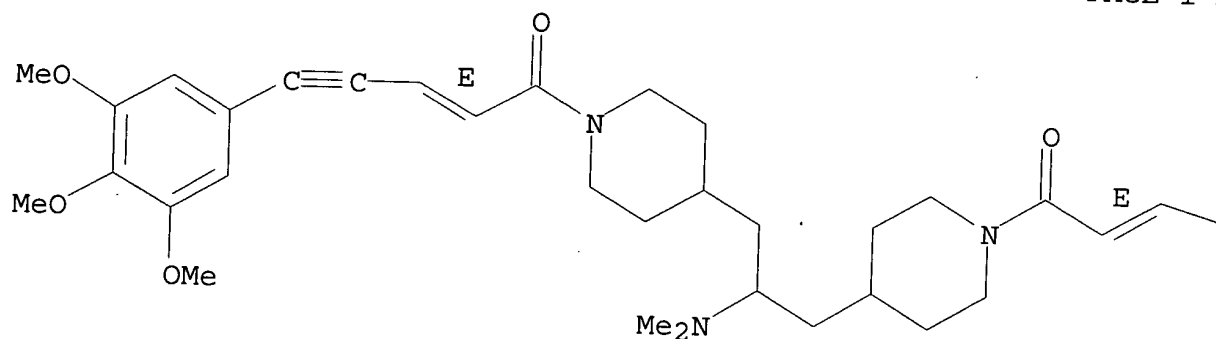


RN 239066-19-4 ZCAPLUS  
 CN 4-Piperidineethanamine, N,N-dimethyl-1-[(2E)-1-oxo-5-(3,4,5-

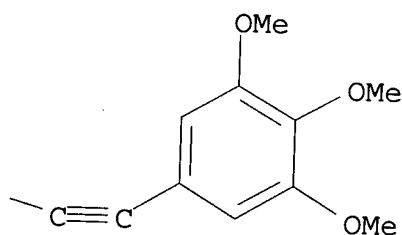
trimethoxyphenyl)-2-penten-4-ynyl]-.alpha.-[[1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-4-piperidinyl]methyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

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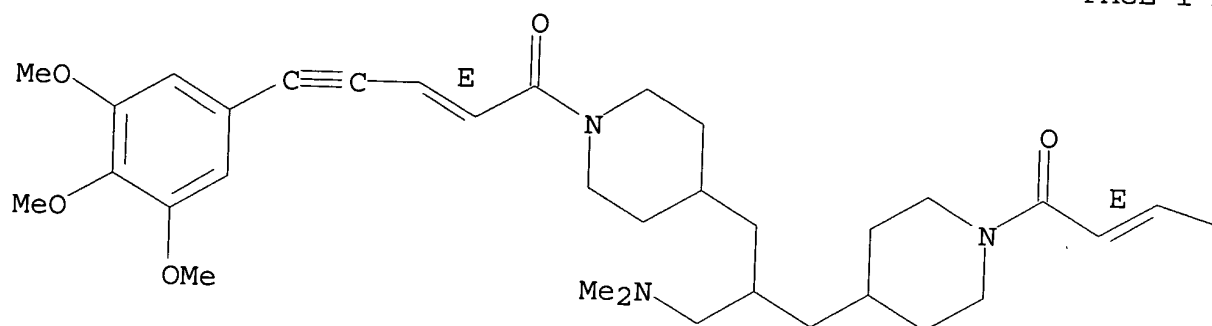
PAGE 1-B



RN 239066-22-9 ZCAPLUS  
 CN 4-Piperidinepropanamine, N,N-dimethyl-1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-.beta.-[[1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-4-piperidinyl]methyl]-, monohydrochloride (9CI) (CA INDEX NAME)

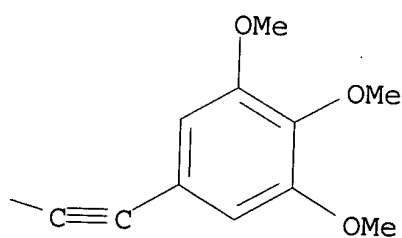
Double bond geometry as shown.

PAGE 1-A



● HCl

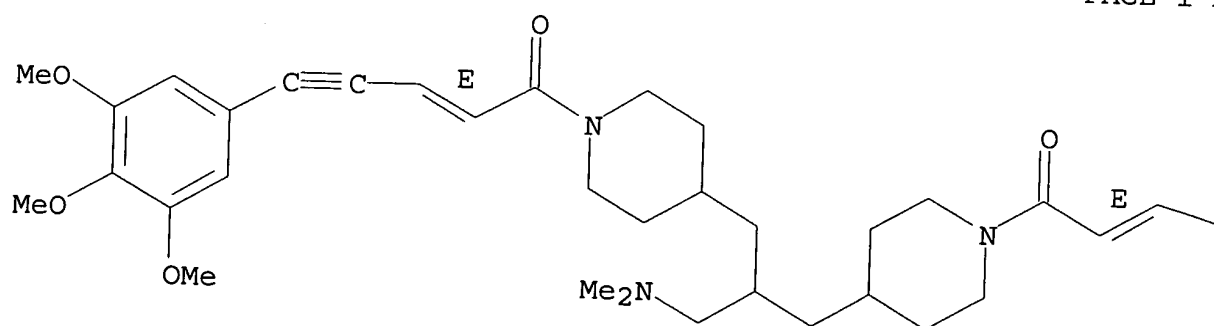
PAGE 1-B



RN 239066-23-0 ZCAPLUS  
CN 4-Piperidinepropanamine, N,N-dimethyl-1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-.beta.-[[1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-4-piperidinyl)methyl]-(9CI) (CA INDEX NAME)

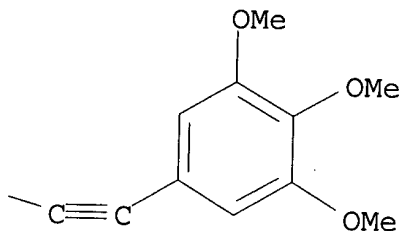
Double bond geometry as shown.

PAGE 1-A





PAGE 1-B

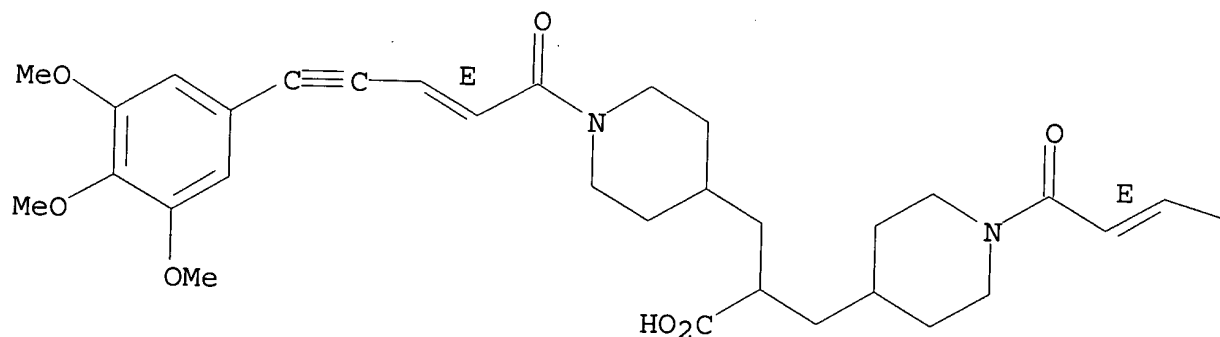


RN 239066-24-1 ZCAPLUS

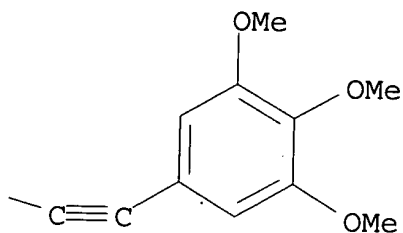
CN 4-Piperidinepropanoic acid, 1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-.alpha.-[[1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-4-piperidinyl]methyl]- (9CI) (CA INDEX NAME)

Double bond geometry as shown.

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PAGE 1-B

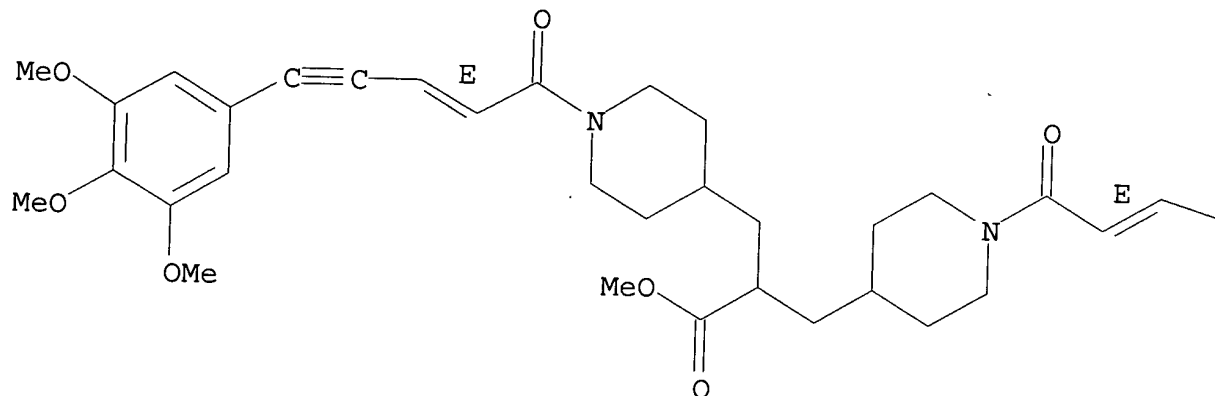


RN 239066-25-2 ZCAPLUS

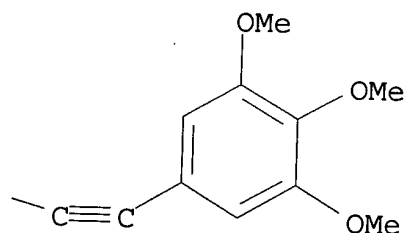
CN 4-Piperidinepropanoic acid, 1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-.alpha.-[[1-[(2E)-1-oxo-5-(3,4,5-trimethoxyphenyl)-2-penten-4-ynyl]-4-piperidinyl]methyl]-, methyl ester (9CI) (CA INDEX NAME)

Double bond geometry as shown.

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PAGE 1-B



IT 239066-11-6P 239066-12-7P 239066-13-8P  
 239066-18-3P 239066-19-4P 239066-22-9P  
 239066-23-0P 239066-24-1P 239066-25-2P  
 (prepn. of N-acyl cyclic amine compds. as inhibitors of IgE  
 prodn. for treatment and prevention of allergic immune diseases)

L16 ANSWER 3 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1999:426986 Document No. 131:122863 Spectrally sensitized photographic  
 emulsion containing bismethine dye with 4,4'-bipyridine skeleton.  
 Kato, Takashi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo  
 Koho JP 11184035 A2 19990709 Heisei, 18 pp. (Japanese). CODEN:  
 JKXXAF. APPLICATION: JP 1997-355892 19971224.

GI

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The emulsion with high sensitivity contains a cyanine dye I or II  
 (Z1, Z2 = azacycle; Z3, Z4 = acidic nuclei; R1, R2 = alkyl; R3-18,  
 R21-36 = H, substituents; R19, R20 = substituents; L1-14 = methine;

n1-4 = 0-4; q1, q2 = 0, 1; M1-2, m1-2 = counter ion and its no. for elec. neutrality).

IT 233280-81-4P

(spectrally sensitized photog. emulsion contg. bismethine dye with bipyridine skeleton)

RN 233280-81-4 ZCAPLUS

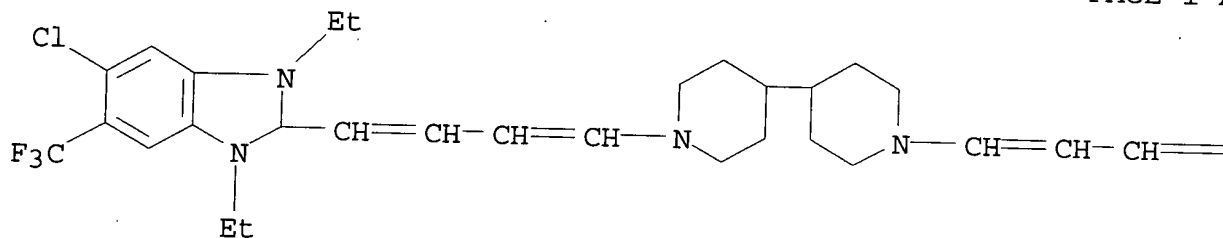
CN 1H-Benzimidazolium, 2,2'-([4,4'-bipiperidine]-1,1'-diyldi-1,3-butadiene-4,1-diyl)bis[5-chloro-1,3-diethyl-6-(trifluoromethyl)-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

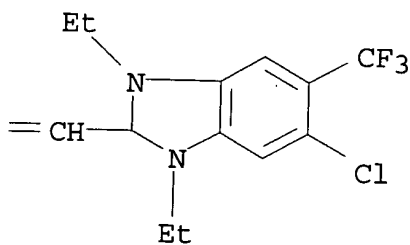
CRN 233280-80-3

CMF C42 H50 Cl2 F6 N6

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PAGE 1-B

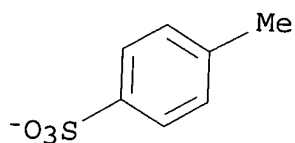


\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

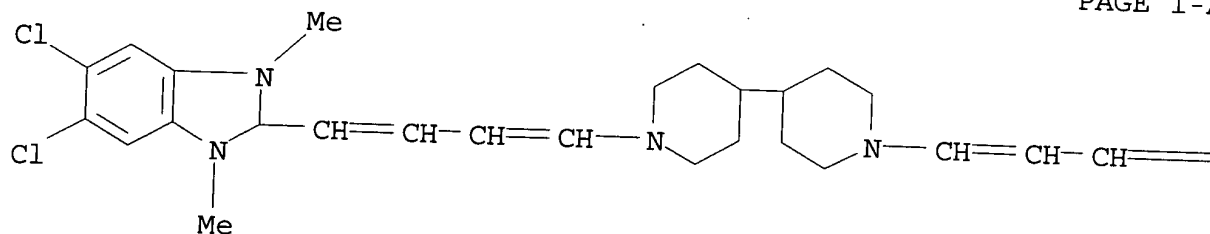
CRN 16722-51-3

CMF C7 H7 O3 S

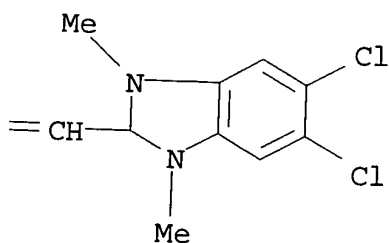


IT 233280-78-9 233280-79-0  
 (spectrally sensitized photog. emulsion contg. bismethine dye  
 with bipyridine skeleton)  
 RN 233280-78-9 ZCAPLUS  
 CN 1H-Benzimidazolium, 2,2'-([4,4'-bipiperidine]-1,1'-diyl)-1,3-  
 butadiene-4,1-diyl)bis[5,6-dichloro-1,3-dimethyl-, salt with  
 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 233280-77-8  
 CMF C36 H42 Cl4 N6

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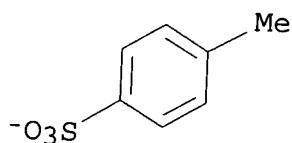
PAGE 1-B



\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

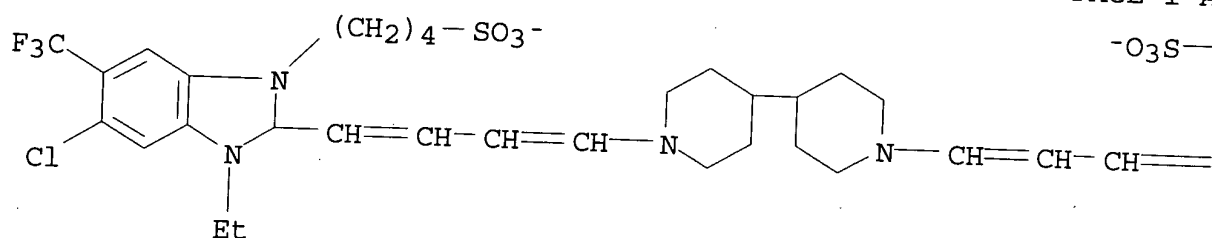
CM 2

CRN 16722-51-3  
 CMF C7 H7 O3 S

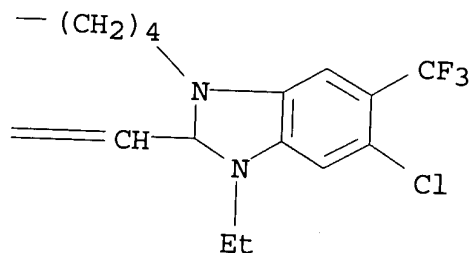


RN 233280-79-0 ZCAPLUS  
 CN 1H-Benzimidazolium, 2,2'-([4,4'-bipiperidine]-1,1'-diyl)-1,3-butadiene-4,1-diyl)bis[5-chloro-3-ethyl-1-(4-sulfobutyl)-6-(trifluoromethyl)-, bis(inner salt) (9CI) (CA INDEX NAME)

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PAGE 1-B



\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

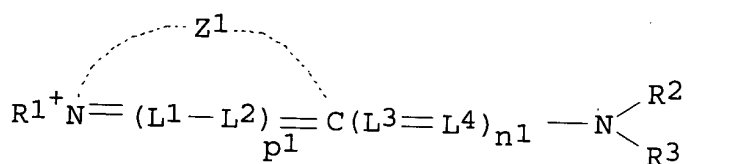
IT 233280-81-4P  
 (spectrally sensitized photog. emulsion contg. bismethine dye  
 with bipyridine skeleton)

IT 233280-78-9 233280-79-0  
 (spectrally sensitized photog. emulsion contg. bismethine dye  
 with bipyridine skeleton)

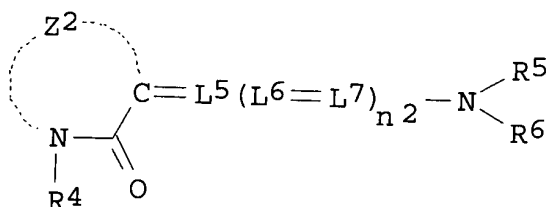
L16 ANSWER 4 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1999:111843 Document No. 130:189357 Silver halide photographic  
 material containing bis(hemicyanine) dye. Ohzeki, Katsuhisa; Kato,  
 Takashi (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho  
 JP 11038546 A2 19990212 Heisei, 41 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1997-193665 19970718.

GI

M<sub>1</sub>m<sub>1</sub>

I

M<sub>2</sub>m<sub>2</sub>

II

AB The material comprising a support having thereon .gtoreq.1 emulsion layer contg. .gtoreq.1 bis(hemicyanine) dye I (Z1 = atoms required to form a 5- or 6-membered N-contg. heterocyclic ring; R1-3 = alkyl, aryl, heterocycle; L1-4 = methine; n1 = 0-4; p1 = 0, 1; M1 = charge-neutralizing counter ion; m1 = 0-10) or II (Z2 = acid methine; n2 = 0-4; M2 = charge-neutralizing counter ion; m2 = 0-10), contains Ag halide grains contg. .gtoreq.50 mol% AgCl in the emulsion, in which .gtoreq.50% of total projected area is provided by particles with the .gtoreq.50% of the surface occupied by (111) plane. The material shows rapid processability, low fog, and high spectral sensitivity.

IT 220578-57-4

(silver halide photog. emulsions contg. bis(hemicyanine) sensitizer dye)

RN 220578-57-4 ZCAPLUS

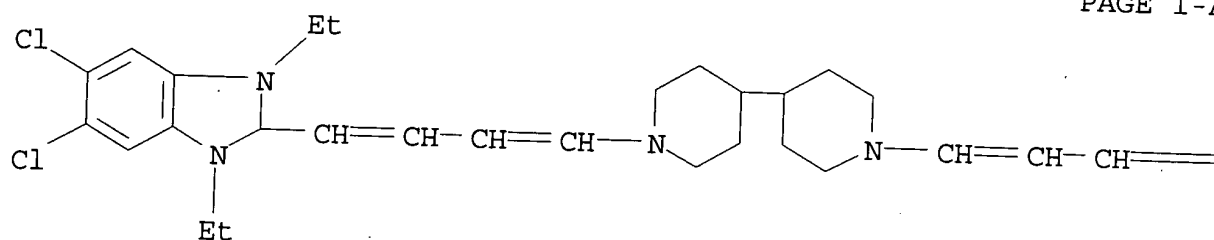
CN 1H-Benzimidazolium, 2,2'-([4,4'-bipiperidine]-1,1'-diyldi-1,3-butadiene-4,1-diyl)bis[5,6-dichloro-1,3-diethyl-, salt with 4-methylbenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

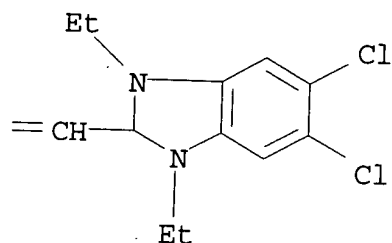
CRN 220578-56-3

CMF C40 H50 Cl4 N6

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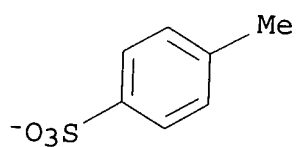
PAGE 1-B



\*\*\* FRAGMENT DIAGRAM IS INCOMPLETE \*\*\*

CM 2

CRN 16722-51-3  
 CMF C7 H7 O3 S

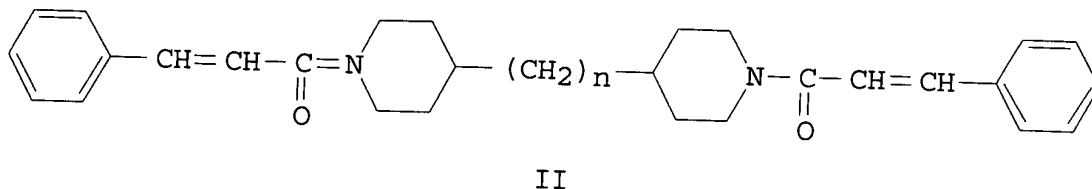
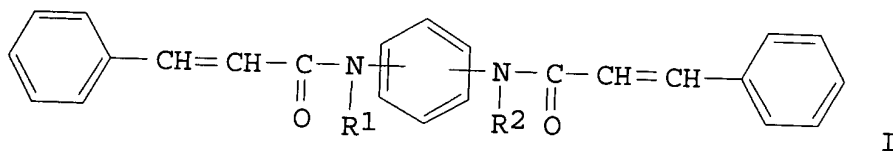


IT 220578-57-4

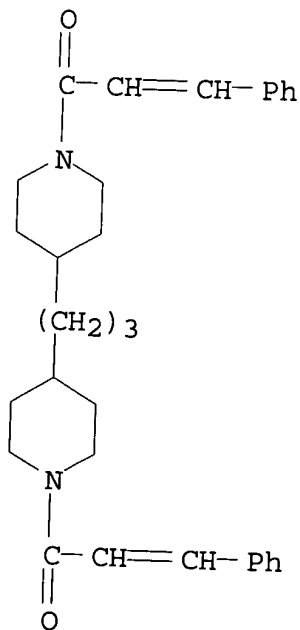
(silver halide photog. emulsions contg. bis(hemicyanine)  
 sensitizer dye)

L16 ANSWER 5 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1992:581871 Document No. 117:181871 Polychromic thermal recording  
 materials. Kurisu, Tokuo (Ricoh Co., Ltd., Japan). Jpn. Kokai  
 Tokkyo Koho JP 04129790 A2 19920430 Heisei, 7 pp. (Japanese).  
 CODEN: JKXXAF. APPLICATION: JP 1990-252700 19900920.

GI

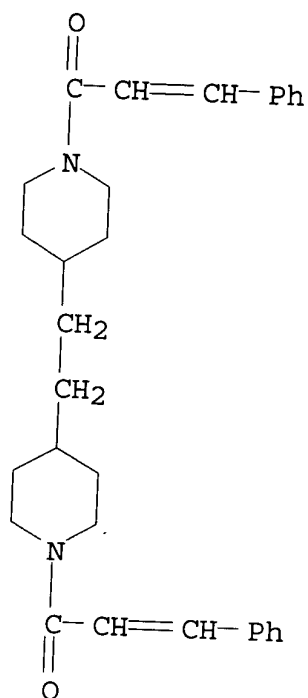


- AB The title materials, with a laminate structure of plural thermal developers forming different color tones, contain cinnamoyl compd. I (R1-2 = alkyl, cycloalkyl, aryl) or II (n = 2-6) as a decolorization agent. The materials give clear and polychromic images.
- IT **143166-91-0 143166-92-1**  
(polychromic thermal recording materials contg.)
- RN 143166-91-0 ZCAPLUS
- CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(1-oxo-3-phenyl-2-propenyl)-(9CI) (CA INDEX NAME)



- RN 143166-92-1 ZCAPLUS
- CN Piperidine, 4,4'-(1,2-ethanediyl)bis[1-(1-oxo-3-phenyl-2-propenyl)-(9CI) (CA INDEX NAME)

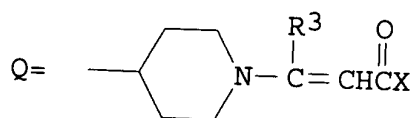




IT 143166-91-0 143166-92-1  
(polychromic thermal recording materials contg.)

L16 ANSWER 6 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
1990:79168 Document No. 112:79168 Rubbers containing unsaturated amine  
antiozonants. Tachi, Shigemitsu; Akimoto, Keiichi; Ohara, Masaki;  
Yamaguchi, Hideaki; Yamamoto, Yoshikimi (Ouchi Shinko Chemical  
Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 01172437 A2  
19890707 Heisei, 13 pp. (Japanese). CODEN: JKXXAF. APPLICATION:  
JP 1987-329611 19871228.

GI



AB XCOCH:CR<sub>3</sub>NR<sub>1</sub>R<sub>2</sub> (R<sub>1</sub>, R<sub>2</sub> = H, aralkyl, alkenyl, cycloalkyl, or  
alkoxy-, OH-, NH<sub>2</sub>-, SH-, CO<sub>2</sub>H-, CN-, Q-, or XCOCH:CR<sub>3</sub>NH-substituted  
C1-18 alkyl, cyclic alkylene or oxydiethylene residue; R<sub>3</sub> = C1-15  
alkyl; or as cyclic alkylene residue with X; X = C1-5 alkyl, alkoxy,  
amino, Me, Ph, halo) are useful as discoloring-resistant  
antiozonants for rubbers. A SBR compn. contg. 2.0% (based on SBR)

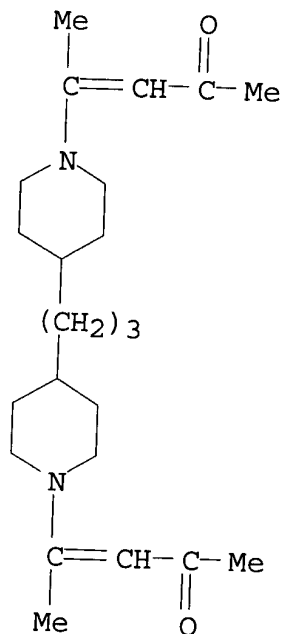
MeCOCH:CMenH<sub>2</sub> showed O<sub>3</sub> resistance (JIS K 6301-1975; 40.degree., 50 .+- 5 ppm O<sub>3</sub>) 6 h.

IT 124747-49-5

(antiozonants, discoloring-resistant, for rubbers)

RN 124747-49-5 ZCAPLUS

CN 3-Penten-2-one, 4,4'-(1,3-propanediyl-di-4,1-piperidinediyl)bis-(9CI) (CA INDEX NAME)



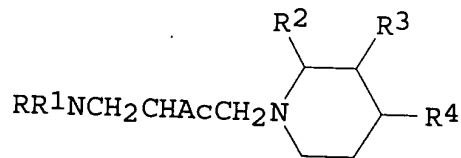
IT 124747-49-5

(antiozonants, discoloring-resistant, for rubbers)

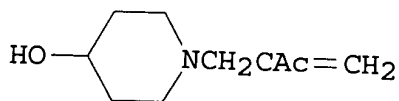
L16 ANSWER 7 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1981:424831 Document No. 95:24831 Treatment of pain, fever, and inflammation with compositions containing piperidinobutan- and 3-buten-2-ones. Dybas, Richard A.; Grier, Nathaniel; Witzel, Bruce E. (Merck and Co., Inc., USA). U.S. US 4250184 19810210, 9 pp. (English). CODEN: USXXAM. APPLICATION: US 1979-59404 19790720.

GI



I



II

AB Piperidinobutanones I (R, R<sub>1</sub> = H, optionally substituted alkyl,

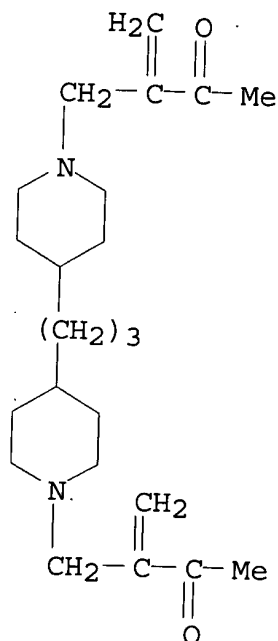
cycloalkyl; NRR1 = heterocyclic; R2-R4 = H, optionally substituted alkyl, OH, Ph, CO<sub>2</sub>H, carbamoyl, alkoxycarbonyl, pyrrolidino, piperidino) were prepd. Thus, 4-piperidinol was treated with acetone and CH<sub>2</sub>O to give I (NRR1 = 4-hydroxypiperidino, R2 = R3 = H, R4 = OH) which was treated with oxalic acid in EtOH to give II.

IT 78057-23-5P

(prepn. of)

RN 78057-23-5 ZCAPLUS

CN 3-Buten-2-one, 3,3'-[1,3-propanediylbis(4,1-piperidinediylmethylene)]bis- (9CI) (CA INDEX NAME)



IT 78057-23-5P

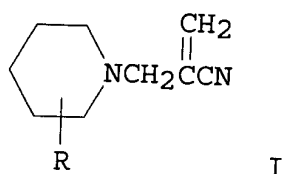
(prepn. of)

L16 ANSWER 8 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

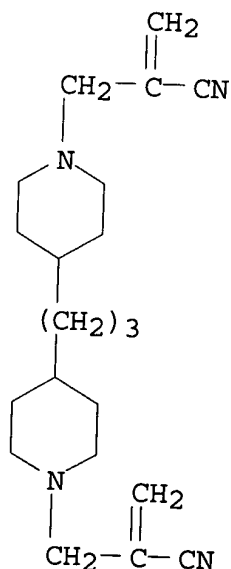
1979:605628 Document No. 91:205628 2-(Substituted

piperidinomethyl)propenenitriles and analogs as preservatives for aqueous systems. Dybas, R. A.; Grier, N.; Witzel, B. E.; Dulaney, E. L.; Tefft, E. R. (Res. Lab., Merck Sharp and Dohme, Rahway, NJ, 07065, USA). Developments in Industrial Microbiology Series, Volume Date 1977, 19, 347-53 (English) 1978. CODEN: DIMCAL. ISSN: 0070-4563.

GI



- AB The title compds. I (R = H, OH, CO<sub>2</sub>H, F, etc.) were prepd. by the decarboxylative condensation of cyanoacetic acid with aq. HCHO and with various piperidines or other bases according to G. Adrian (1971) and were evaluated for potential utility in the preservation of acrylic and polyvinyl latex paints. *Pseudomonas aeruginosa* Growth inhibition by 0.01-0.05% I was detd. in these paints. Only I (R = H) [27315-95-3], I (R = 4-OH) [71976-65-3], and I (R = 3-OH) [71976-66-4] at 0.05% suppressed the growth of *Pseudomonas* within 48 h and maintained this suppression for 2 wk. I did not match the antimicrobial efficiency of PhHgOAc. Derivs. and analogs of decreased antimicrobial potency reflected greater binding stability of the heterocyclic amine moiety. The acute toxicity of 4-(4-hydroxy-1-piperidinyl)-3-[(4-hydroxy-1-piperidinyl)methyl]-2-butanone [70525-21-2] is LD<sub>50</sub> 258 mg/kg (mice, oral).
- IT **71976-55-1P**  
(prepn. and preservative action of, in acrylic paints)
- RN 71976-55-1 ZCAPLUS
- CN 1-Piperidinepropanenitrile, 4,4'-(1,3-propanediyl)bis[.alpha.-methylene- (9CI) (CA INDEX NAME)]

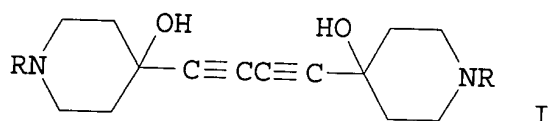


IT **71976-55-1P**

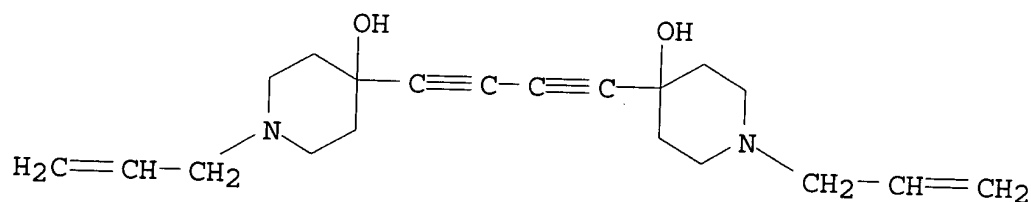
(prepn. and preservative action of, in acrylic paints)

L16 ANSWER 9 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1979:17680 Document No. 90:17680 Dihydrochlorides of diacetylenic glycols containing piperidine rings as plant-growth stimulators. Azerbaev, I. N.; Ismailova, Sh. E.; Salimbaeva, A. D.; Manatauov, D. M.; Reshetov, V. P.; Korol'kov, N. V. (Institute of Chemical Sciences, Academy of Sciences, Kazakh S.S.R., USSR). U.S.S.R. SU 558502 19780930 From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki 1978, 55(36), 203. (Russian). CODEN: URXXAF. APPLICATION: SU 1974-2030746 19740606.

GI



AB Title glycols I (R = Et, allyl) are plant growth stimulators.  
 IT **68696-15-1**  
 (plant growth stimulator)  
 RN 68696-15-1 ZCAPLUS  
 CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[1-(2-propenyl)-, dihydrochloride (9CI) (CA INDEX NAME)



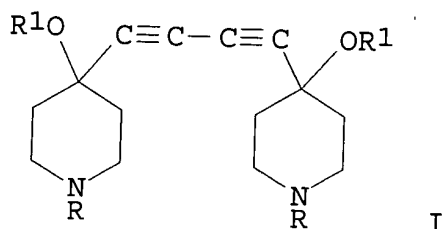
● 2 HCl

IT **68696-15-1**  
 (plant growth stimulator)

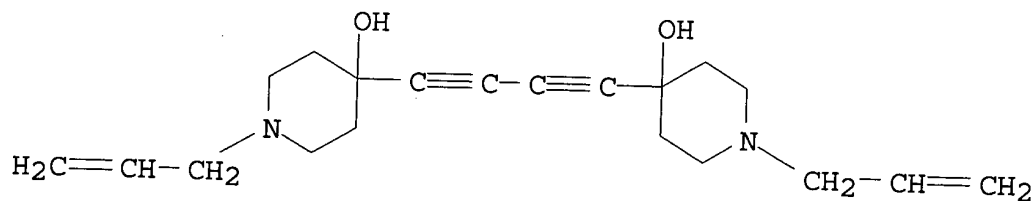
L16 ANSWER 10 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1978:190553 Document No. 88:190553 Synthesis of potentially physiologically active substances based on symmetric diacetylenic glycols of gamma-piperidols. Azerbaev, I. N.; Ismailova, Sh. E.; Salimbaeva, A. D.; Babasheva, K.; Ibrasheva, R. K. (Inst. Khim. Nauk, Alma-Ata, USSR). Tezisy Dokl. - Vses. Konf. Khim. Atsetilena, 5th, 261-2. "Metsniereba": Tiflis, USSR. (Russian) 1975. CODEN:

37NAAL.

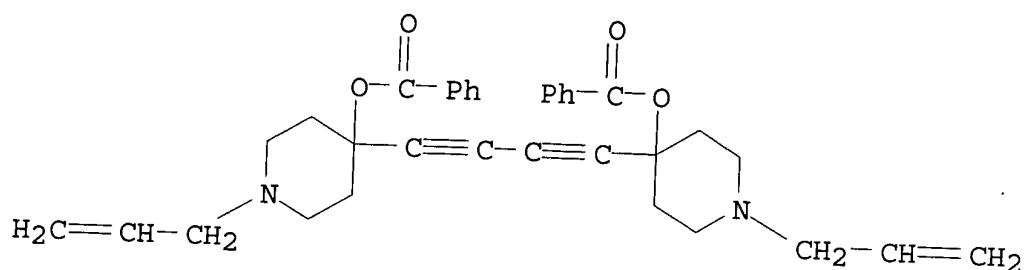
GI



- AB Benzoylation of glycols I (R = Me, Et, allyl; R1 = H) with BzCl gave  
 I (R1 = Bz); I (R4 = Ac) were obtained by acetylation.  
 IT **66481-46-7**  
 (benzoylation and acetylation of)  
 RN 66481-46-7 ZCAPLUS  
 CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[1-(2-propenyl)-  
 (9CI) (CA INDEX NAME)

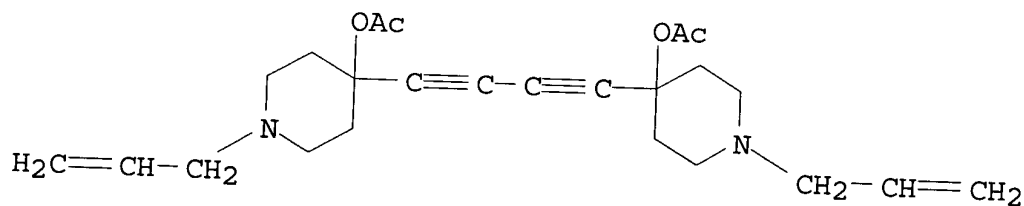


- IT **66481-49-0P 66481-52-5P**  
 (prepn. of)  
 RN 66481-49-0 ZCAPLUS  
 CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[1-(2-propenyl)-,  
 dibenzoate (ester), dihydrochloride (9CI) (CA INDEX NAME)



● 2 HCl

RN 66481-52-5 ZCAPLUS  
 CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[1-(2-propenyl)-, diacetate (ester), dihydrochloride (9CI) (CA INDEX NAME)

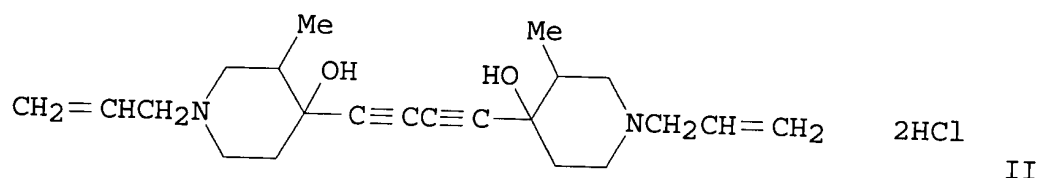
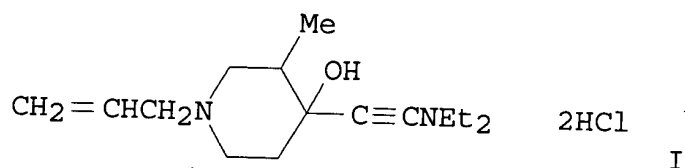


● 2 HCl

IT 66481-46-7  
 (benzoylation and acetylation of)  
 IT 66481-49-0P 66481-52-5P  
 (prepn. of)

L16 ANSWER 11 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1978:147307 Document No. 88:147307 Organic growth-stimulating preparations based on .alpha.-piperidinol derivatives. Azerbaev, I. N.; Ismailova, Sh. E.; Salimbaeva, A. D.; Babasheva, K. K.; Ibrasheva, R. K. (Inst. Khim. Nauk, Alma-Ata, USSR). Mekh. Deistviya Gerbits. Sint. Regul. Rosta Rast. Ikh Sud'ba Biosfere, Mater. Mezhdunar. Simp. Stran-Chlenov SEV, 10th, Volume 1, 154-6. Editor(s): Sokolov, M. S. Akad. Nauk SSSR, Nauchn. Tsentr Biol. Issled.: Pushchino, USSR. (Russian) 1975. CODEN: 37NSA7.

GI



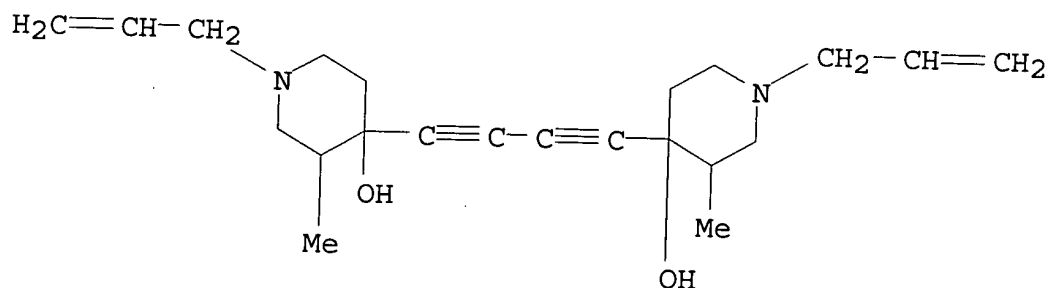
AB Immersion of bulbs and seeds of gladiolus, narcissus, and tulips in 0.0001% cis-1-allyl-3-methyl-4-(3-diethylaminoethyn-1-yl)piperidine-2HCl (I) [66115-54-6], 1,4-bis(1-allyl-3-methyl-4-hydroxypiperid-4-yl)butadi-1,3-yn-2HCl (II) [53019-25-3], or trans-1-allyl-3-methyl-4-(3-morpholinoethyn-1-yl)piperidin-4-ol-2HCl [66115-55-7] stimulated emergence and growth, and increased bulb yield by 1 to 200%. Flower quality was improved. The contents of N and P in aerial parts were increased and in some cases transpiration was stimulated.

IT 53019-25-3

(plant growth stimulator)

RN 53019-25-3 ZCAPLUS

CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[3-methyl-1-(2-propenyl)-, dihydrochloride (9CI) (CA INDEX NAME)



● 2 HCl

IT 53019-25-3

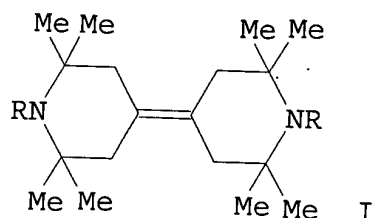
(plant growth stimulator)

L16 ANSWER 12 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
1977:405815 Document No. 87:5815 2,2',6,6'-Tetraalkyl-2,2',6,6'-tetramethyl-4,4'-bipiperidylidene derivatives. Soma, Nobuo;



Yoshioka, Takao; Morimura, Syoji; Kurumada, Tomoyuki (Sankyo Co., Ltd., Japan). Ger. Offen. DE 2630798 19770224, 36 pp. (German).  
 CODEN: GWXXBX. APPLICATION: DE 1976-2630798 19760708.

GI



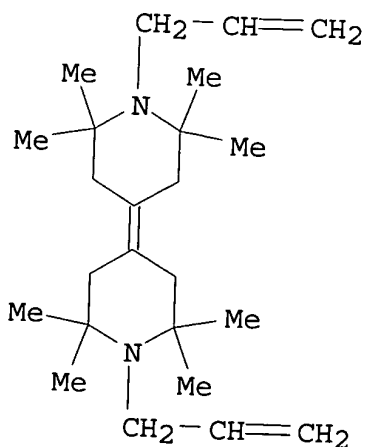
AB Bipiperidylidene derivs. (I; R = e.g. H, Me, Et, H<sub>2</sub>C:CHCH<sub>2</sub>, H<sub>2</sub>C:CHCO, HOCH<sub>2</sub>CH<sub>2</sub>, AcOCH<sub>2</sub>CH<sub>2</sub>, Bu, PhCH<sub>2</sub>), useful as stabilizers for polymers, are prepd. by reductive condensation of 4-piperidinones. Thus, reaction of 15.5 g 2,2,6,6-tetramethyl-4-piperidinone in dioxane in presence of AcOH and TiCl<sub>4</sub> with Zn powder at 10-5.degree. for 1 h and 8 h at reflux gives 12.5 g I (R = H) (II). Polypropylene film, irradiated with UV at 45.degree., contg. 0.25% II, becomes brittle after 1120 h, compared to 120 h without stabilizer and 320 h with Tinuvin 327.

IT 62810-60-0P 62810-61-1P

(prepn. of, and polymer stabilization by)

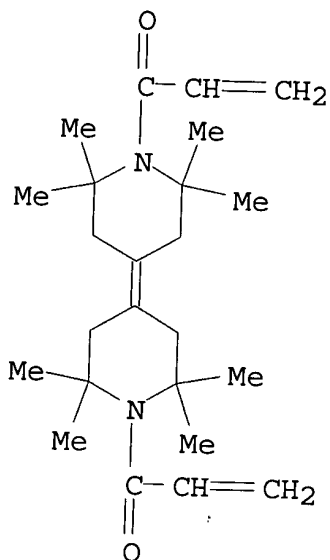
RN 62810-60-0 ZCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(2-propenyl)-4-[2,2,6,6-tetramethyl-1-(2-propenyl)-4-piperidinylidene]- (9CI) (CA INDEX NAME)



RN 62810-61-1 ZCAPLUS

CN Piperidine, 2,2,6,6-tetramethyl-1-(1-oxo-2-propenyl)-4-[2,2,6,6-tetramethyl-1-(1-oxo-2-propenyl)-4-piperidinylidene]- (9CI) (CA INDEX NAME)



IT 62810-60-0P 62810-61-1P  
(prepn. of, and polymer stabilization by)

L16 ANSWER 13 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
1975:171962 Document No. 82:171962 Dipiperidyl derivatives as light and heat stabilizers for polymers. Murayama, Keisuke; Morimura, Syoji; Yoshioka, Takao; Kurumada, Tomoyuki (Sankyo Co., Ltd.). Ger. Offen. DE 2425984 19750109, 27 pp. (German). CODEN: GWXXBX.  
APPLICATION: DE 1974-2425984 19740530.

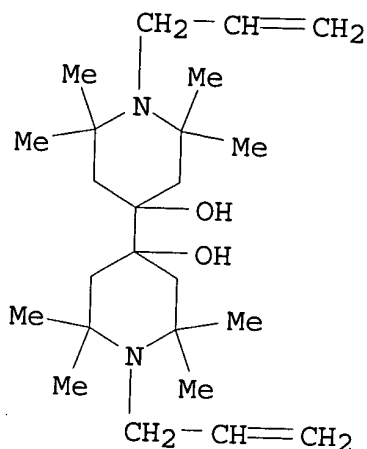
GI For diagram(s), see printed CA Issue.

AB The bipiperidinediols I (R1,R2 = H, hydrocarbyl, substituted hydrocarbyl, alkoxy carbonyl, acyl) or their salts are heat- and light-stabilizers for polymers. Thus, gradually adding 7 g Na to 31 g triacetoneamine [826-36-8], 18 g HOAc, and 300 ml PhMe stirred at 90-105.degree. gives 27.4 g I (R1,R2 = H) (II) [55196-74-2]. Noblen JHH-G (polypropylene) [9003-07-0] and Hizex (high-d. polyethylene) [9002-88-4] contg. 0.25% II require 900 and 2060 hr, resp., Fadometer exposure at 45.degree. for embrittlement, compared with 60 and 400, resp., in the absence of II.

IT 55196-80-0  
(heat- and light-stabilizers, for plastics)

RN 55196-80-0 ZCAPLUS

CN [4,4'-Bipiperidine]-4,4'-diol, 2,2,2',2',6,6,6',6'-octamethyl-1,1'-di-2-propenyl- (9CI) (CA INDEX NAME)



IT 55196-80-0

(heat- and light-stabilizers, for plastics)

L16 ANSWER 14 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1974:463453 Document No. 81:63453 Cyanoethylation of diacetylenic glycols of the piperidine series. Azerbaev, I. N.; Ismailova, Sh. E. (USSR). Zh. Org. Khim., 10(5), 987-9 (Russian) 1974. CODEN: ZORKAE.

GI For diagram(s), see printed CA Issue.

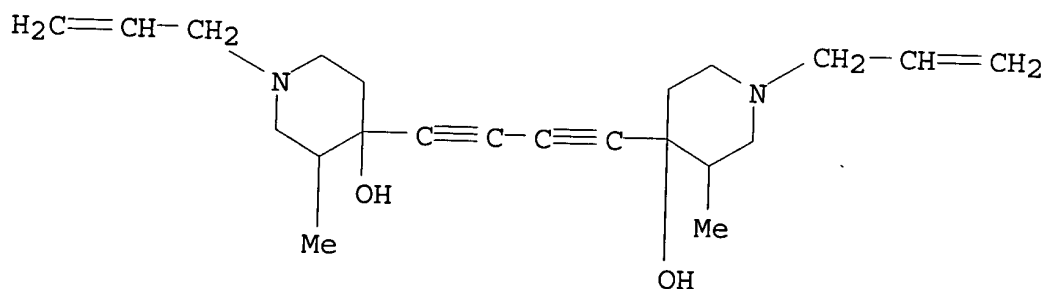
AB Diacetylenic glycol (I; R = H, .beta.-isomer) was obtained in 94% yield by oxidn. of II. (.beta. isomer) in presence of CuCl. Analogously obtained was 82% I (.gamma.-isomer). Cyanoethylation of I (R = H, .beta.-isomer) gave 31% I (R = CH<sub>2</sub>CH<sub>2</sub>CN). Analogously obtained was 30% I (R = CH<sub>2</sub>CH<sub>2</sub>CN, .gamma.-isomer).

IT 40507-44-6P 50494-39-8P 53019-25-3P  
 53019-26-4P

(prepn. of)

RN 40507-44-6 ZCAPLUS

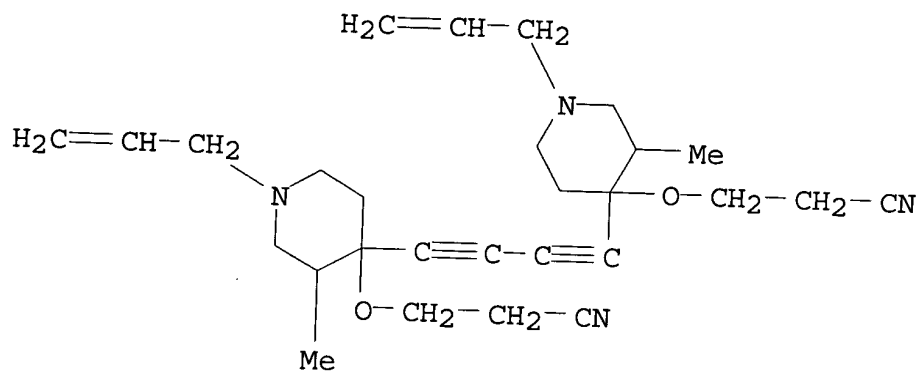
CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[3-methyl-1-(2-propenyl)- (9CI) (CA INDEX NAME)



RN 50494-39-8 ZCAPLUS

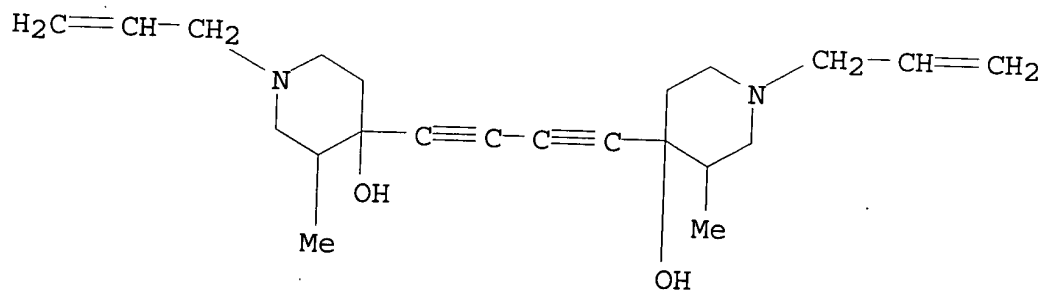
CN Propanenitrile, 3,3'-[1,3-butadiyne-1,4-diylbis[[3-methyl-1-(2-

propenyl)-4-piperidinylidene]oxy]bis- (9CI) (CA INDEX NAME)



RN 53019-25-3 ZCAPLUS

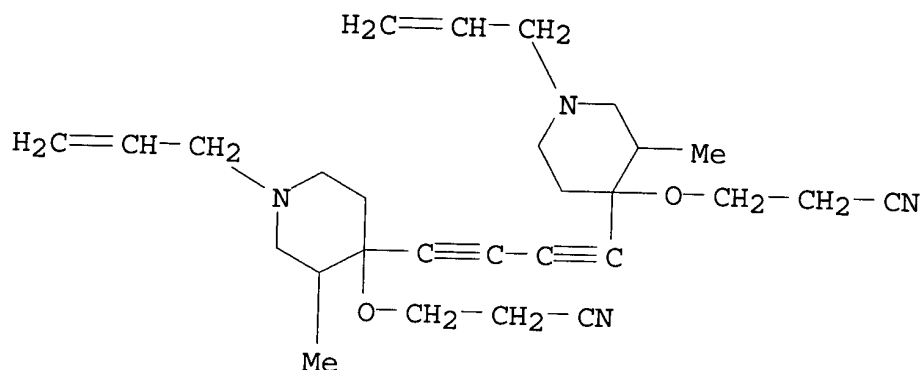
CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[3-methyl-1-(2-propenyl)-, dihydrochloride (9CI) (CA INDEX NAME)



● 2 HCl

RN 53019-26-4 ZCAPLUS

CN Propanenitrile, 3,3'-[1,3-butadiyne-1,4-diylbis[[3-methyl-1-(2-propenyl)-4-piperidinyldene]oxy]]bis-, dihydrochloride (9CI) (CA INDEX NAME)



● 2 HCl

IT 40507-44-6P 50494-39-8P 53019-25-3P  
53019-26-4P  
(prepn. of)

L16 ANSWER 15 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
1973:526321 Document No. 79:126321 Bis(2-cyanoethyl) ether of  
piperidine diacetylene glycol. Azerbaev, I. N.; Ismailova, Sh. E.  
(Institute of Chemical Sciences, Academy of Sciences, Kazakh  
S.S.R.). U.S.S.R. SU 371224 19730222 From: Otkrytiya, Izobret.,  
Prom. Obratzsy, Tovarnye Znaki 1973, 50(12), 73. (Russian). CODEN:  
URXXAF. APPLICATION: SU 19710402.

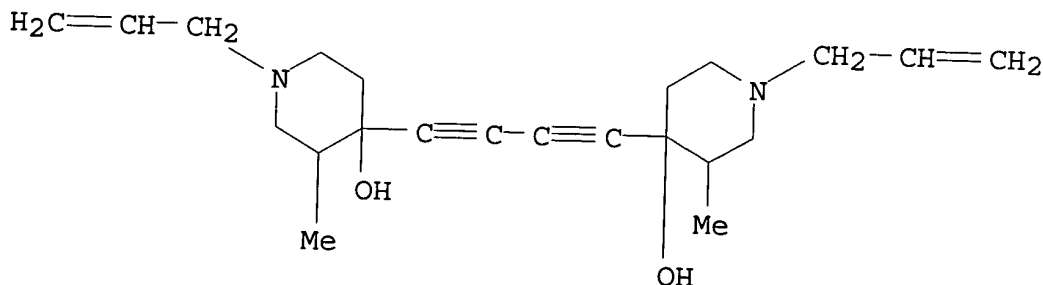
GI For diagram(s), see printed CA Issue.

AB The cyanoethyl ether I (R = CH<sub>2</sub>CH<sub>2</sub>CN) were prepd. by oxidative  
coupling of 1-allyl-3-methyl-4-ethynylpiperidinol in NH<sub>4</sub>OH in the  
presence of CuCl and atm. O to give I (R = H), which condensed with  
CH<sub>2</sub>:CHCN in THF contg. 40% KOH. Correction of CA 79: 42348f.

IT 40507-44-6  
(condensation of, with acrylonitrile)

RN 40507-44-6 ZCAPLUS

CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[3-methyl-1-(2-  
propenyl)- (9CI) (CA INDEX NAME)

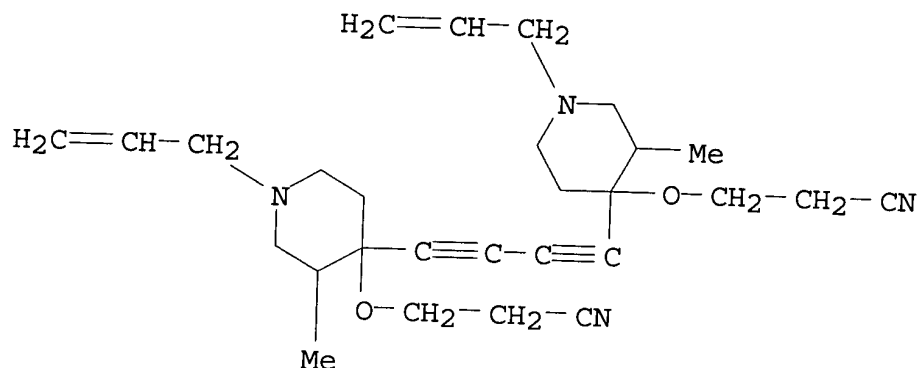


IT 50494-39-8P

(prepn. of)

RN 50494-39-8 ZCAPLUS

CN Propanenitrile, 3,3'-[1,3-butadiyne-1,4-diylbis[[3-methyl-1-(2-propenyl)-4-piperidinylidene]oxy]bis- (9CI) (CA INDEX NAME)



IT 40507-44-6

(condensation of, with acrylonitrile)

IT 50494-39-8P

(prepn. of)

L16 ANSWER 16 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1973:492830 Document No. 79:92830 Bisenamines for making polyureas. (Schering A.-G.). Fr. FR 2136178 19730126, 25 pp. (French). CODEN: FRXXAK. APPLICATION: FR 1972-11899 19720405.

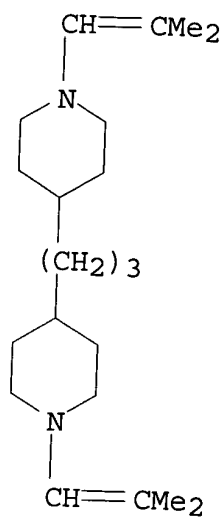
AB Bisenamines were prepd. from secondary diamines and aliph. aldehydes or cycloaliph. ketones, and treated with isocyanates to give polyurea compns. for elastic moldings, and coatings. Thus, 1,3-dipiperid-4-ylpropane-isobutyraldehyde adduct (I) [40957-66-2] is prepd. by refluxing 5.96 parts diamine with 8.18 parts aldehyde with water removal. I (10 parts) was mixed with 89 parts polypropylene glycol-isophorone diisocyanate adduct [39323-37-0] and kept 12 months without thickening. When an equiv. concn. of water was added, and the mixt. molded, it hardened in 12 hr to give an elastic object.

IT 38233-98-6

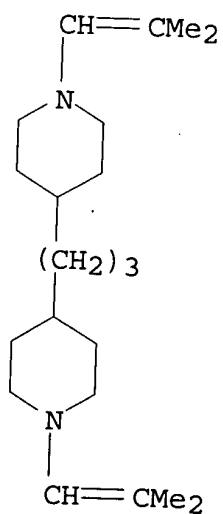
(in polyurea-polyurethane manuf.)

RN 38233-98-6 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)- (9CI) (CA INDEX NAME)

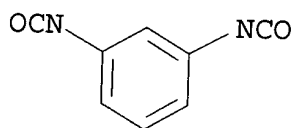


IT 39330-26-2 39330-27-3 41259-35-2  
 41390-74-3 50318-90-6 51160-86-2  
 (storage-stable)  
 RN 39330-26-2 ZCAPLUS  
 CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with  
 1,3-diisocyanatomethylbenzene and 4,4'-(1,3-propanediyl)bis[1-(2-  
 methyl-1-propenyl)piperidine] (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 38233-98-6  
 CMF C21 H38 N2



CM 2

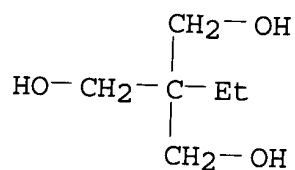
CRN 26471-62-5  
CMF C9 H6 N2 O2  
CCI IDS



D1-Me

CM 3

CRN 77-99-6  
CMF C6 H14 O3

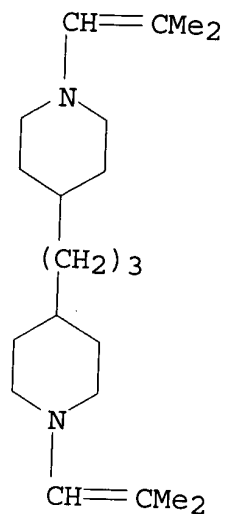


RN 39330-27-3 ZCAPLUS  
CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-,  
polymer with 1,6-diisocyanato-2,2,4(or 2,4,4)-trimethylhexane (9CI)  
(CA INDEX NAME)

CM 1

CRN 38233-98-6  
CMF C21 H38 N2



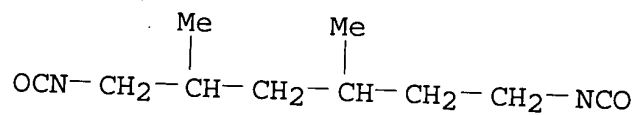


CM 2

CRN 32052-51-0

CMF C11 H18 N2 O2

CCI IDS



D1-Me

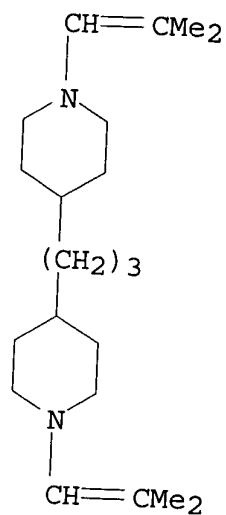
RN 41259-35-2 ZCAPLUS

CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with  
 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane and  
 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)piperidine] (9CI)  
 (CA INDEX NAME)

CM 1

CRN 38233-98-6

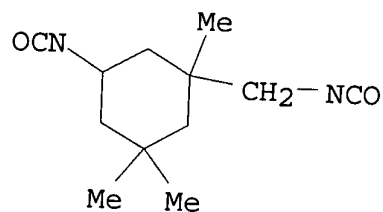
CMF C21 H38 N2



CM 2

CRN 4098-71-9

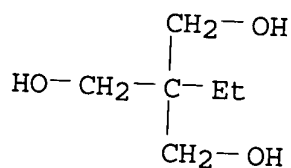
CMF C12 H18 N2 O2



CM 3

CRN 77-99-6

CMF C6 H14 O3



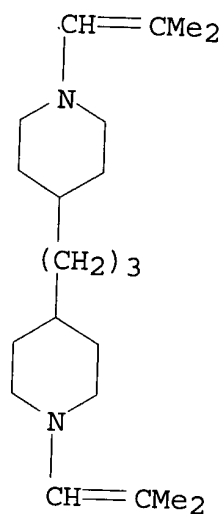
RN 41390-74-3 ZCAPLUS  
 CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-,  
 polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-

trimethylcyclohexane (9CI) (CA INDEX NAME)

CM 1

CRN 38233-98-6

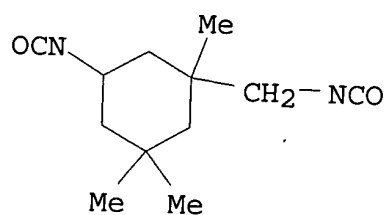
CMF C21 H38 N2



CM 2

CRN 4098-71-9

CMF C12 H18 N2 O2



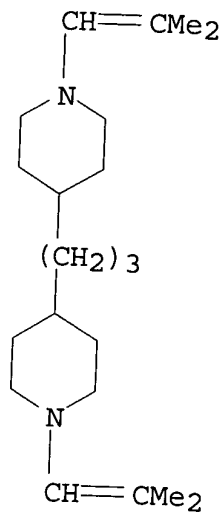
RN 50318-90-6 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-, polymer with 1,6-diisocyanatohexane (9CI) (CA INDEX NAME)

CM 1

CRN 38233-98-6

CMF C21 H38 N2



CM 2

CRN 822-06-0

CMF C8 H12 N2 O2

OCN-(CH<sub>2</sub>)<sub>6</sub>-NCO

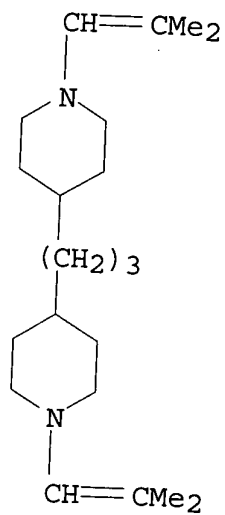
RN 51160-86-2 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-, polymer with .alpha.-hydro-.omega.-hydroxypoly[oxy(methyl-1,2-ethanediyl)] and 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane (9CI) (CA INDEX NAME)

CM 1

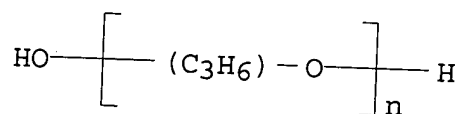
CRN 38233-98-6

CMF C21 H38 N2



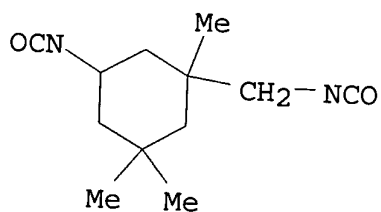
CM 2

CRN 25322-69-4  
 CMF (C3 H6 O)<sub>n</sub> H2 O  
 CCI IDS, PMS



CM 3

CRN 4098-71-9  
 CMF C12 H18 N2 O2

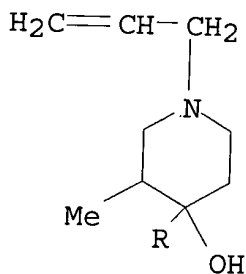


IT 38233-98-6  
 (in polyurea-polyurethane manuf.)  
 IT 39330-26-2 39330-27-3 41259-35-2  
 41390-74-3 50318-90-6 51160-86-2

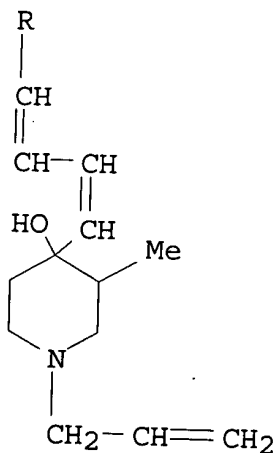
(storage-stable)

L16 ANSWER 17 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1973:442348 Document No. 79:42348 Bis(2-cyanoethyl) ethers of  
 piperidine diacetylene glycols. Azerbaev, I. N.; Ismailova, Sh. E.  
 (Institute of Chemical Sciences, Academy of Sciences, Kazakh  
 S.S.R.). U.S.S.R. SU 371224 19730222 From: Otkrytiya, Izobret.,  
 Prom. Obraztsy, Tovarnye Znaki 1973, 50(12), 73. (Russian). CODEN:  
 URXXAF. APPLICATION: SU 19710402.  
 GI For diagram(s), see printed CA Issue.  
 AB The title compd. (I, R = CH<sub>2</sub>CH<sub>2</sub>CN) was prepd. by oxidative coupling  
 of 1-allyl-3-methyl-4-ethynylpiperidinol in NH<sub>4</sub>OH in the presence of  
 CuCl and atm. O<sub>2</sub> to give I (R = H), which condensed with CH<sub>2</sub>:CHCN in  
 THF contg. 40% KOH.  
 IT **41726-94-7P 42333-79-9P**  
 (prepn. of)  
 RN 41726-94-7 ZCAPLUS  
 CN 4-Piperidinol, 4,4'-(1,3-butadiene-1,4-diyl)bis[3-methyl-1-(2-  
 propenyl)- (9CI) (CA INDEX NAME)

PAGE 1-A

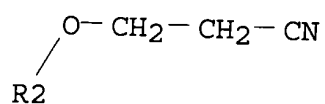
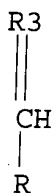
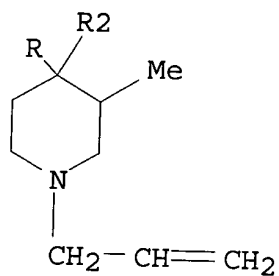


PAGE 2-A

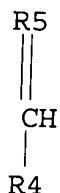
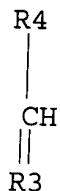


RN 42333-79-9 ZCAPLUS  
CN Propanenitrile, 3,3'-[1,3-butadiene-1,4-diylbis[[3-methyl-1-(2-propenyl)-4-piperidinylidene]oxy]]bis- (9CI) (CA INDEX NAME)

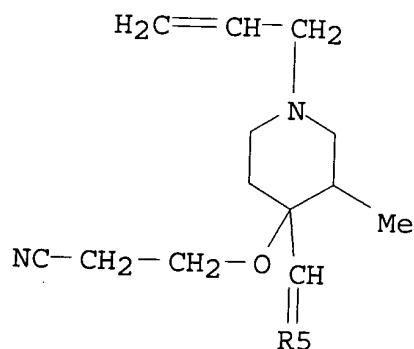
PAGE 1-A



PAGE 2-A



PAGE 3-A



IT 41726-94-7P 42333-79-9P  
(prepn. of)

L16 ANSWER 18 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
1973:418538 Document No. 79:18538 New physiologically active compounds based on stereoisomeric diacetylenic glycols of the piperidine series. Azerbaev, I. N.; Ismailova, Sh. E. (USSR). Dokl. Vses. Konf. Khim. Atsetilena, 4th, Volume 1, 284-7 From: Ref. Zh., Khim. 1973, Abstr. No. 3Zh263 (Russian) 1972.

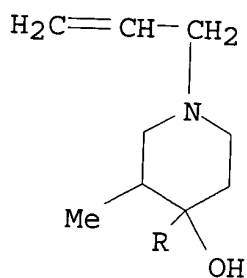
AB .gamma.-1-Allyl-4-ethynyl-3-methyl-4-piperidinol (.gamma.-I) was oxidized by air in the presence of Cu<sub>2</sub>Cl<sub>2</sub> to give 94% .gamma.-1,4-bis(1-allyl-4-hydroxy-3-methyl-4-piperinyl)-1,3-butadiene (.gamma.-II). Similarly .beta.-I gave 82% .beta.-II. Also prepd. and characterized were .beta.-II.2HCl and .gamma.-II.2HCl.

IT 41726-94-7P 41726-95-8P

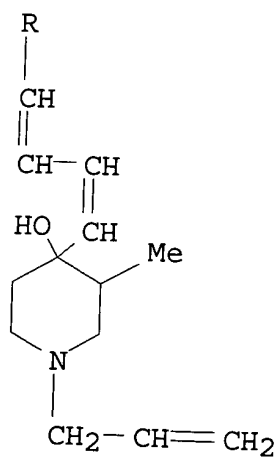


(prepn. of)  
RN 41726-94-7 ZCAPLUS  
CN 4-Piperidinol, 4,4'-(1,3-butadiene-1,4-diyl)bis[3-methyl-1-(2-propenyl)-(9CI) (CA INDEX NAME)

PAGE 1-A

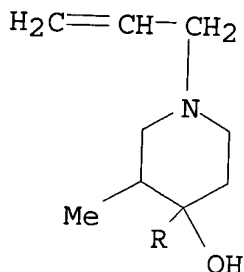


PAGE 2-A

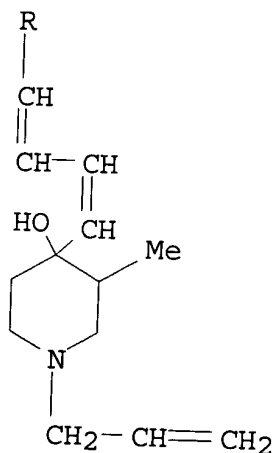


RN 41726-95-8 ZCAPLUS  
CN 4-Piperidinol, 4,4'-(1,3-butadiene-1,4-diyl)bis[3-methyl-1-(2-propenyl)-, dihydrochloride (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 2-A



● 2 HCl

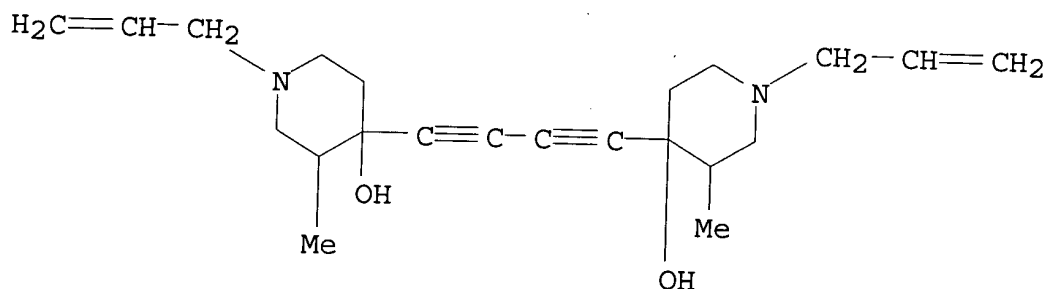
IT 41726-94-7P 41726-95-8P  
(prepn. of)

L16 ANSWER 19 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
 1973:111140 Document No. 78:111140 1,4-Diperidinyll-1,3-butadiyne  
 glycol derivative. Azerbaev, I. N.; Ismailova, Sh. E. (Institute of  
 Chemical Sciences, Academy of Sciences, Kazakh S.S.R.). U.S.S.R. SU  
 361175 19721207 From: Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye  
 Znaki 1973, 50(1), 57-8. (Russian). CODEN: URXXAF. APPLICATION:  
 SU 19710302.  
 GI For diagram(s), see printed CA Issue.  
 AB The title compd. (I) was prepd. by oxidative condensation of  
 1-allyl-3-methyl-4-ethynyl-4-piperidinol in a solvent contg. CuCl.  
 IT 40507-44-6P

(prepn. of)

RN 40507-44-6 ZCAPLUS

CN 4-Piperidinol, 4,4'-(1,3-butadiyne-1,4-diyl)bis[3-methyl-1-(2-propenyl)-(9CI) (CA INDEX NAME)

IT 40507-44-6P  
(prepn. of)

L16 ANSWER 20 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1973:99228 Document No. 78:99228 Stable mixtures of enamines and polyisocyanates. Brinkmann, Bernd; Griebisch, Eugen (Schering A.-G.). Ger. Offen. DE 2125247 19721019, 28 pp. Division of Ger. Offen. 2,116,882 (German). CODEN: GWXXBX. APPLICATION: DE 1971-2125247 19710406.

AB The title stable mixtures, which formed polyureas on exposure to moisture, were prepd. by mixing a dienamine, e.g. compd. (I) [38233-98-6], or a monoamine contg. an OH, NH<sub>2</sub>, ketimine, or aldimine group, e.g. compd. (II) [38233-99-7], with a polyisocyanate, e.g., isophorone diisocyanate (III) [26602-93-7]. The mixts. were useful as coating compns., sealants, etc. Thus, 4,4'-dipiperidylpropane reacted with isobutyraldehyde to form I. I (10 parts) was mixed with 6.9 parts III in ethylene glycol acetate to form a 50% soln. In the absence of moisture, the mixt. was stored 12 weeks without a viscosity change. When a soln. was poured out on a surface and exposed to air with 60% relative humidity, a clear tackfree film was formed in 90 min.

IT 39330-26-2 39330-27-3 39330-28-4  
39366-26-2 41259-35-2 41390-74-3  
(coatings, air-curing)

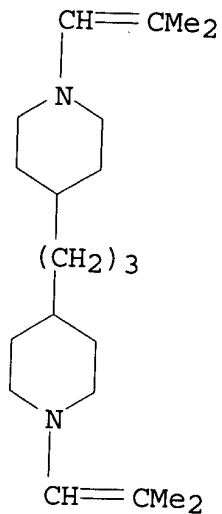
RN 39330-26-2 ZCAPLUS

CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with 1,3-diisocyanatomethylbenzene and 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)piperidine] (9CI) (CA INDEX NAME)

CM 1

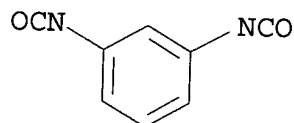
CRN 38233-98-6

CMF C21 H38 N2



CM 2

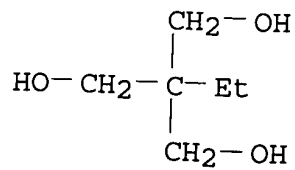
CRN 26471-62-5  
 CMF C9 H6 N2 O2  
 CCI IDS



D1-Me

CM 3

CRN 77-99-6  
 CMF C6 H14 O3



RN 39330-27-3 ZCAPLUS

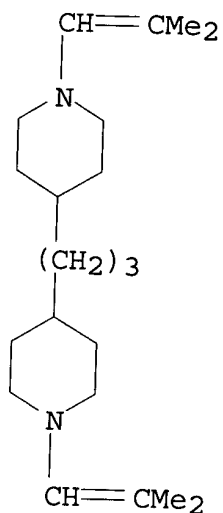
CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-,

polymer with 1,6-diisocyanato-2,2,4(or 2,4,4)-trimethylhexane (9CI)  
(CA INDEX NAME)

CM 1

CRN 38233-98-6

CMF C21 H38 N2

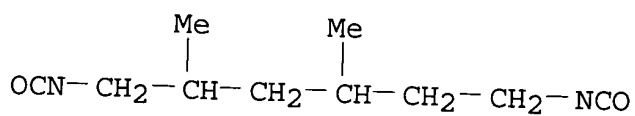


CM 2

CRN 32052-51-0

CMF C11 H18 N2 O2

CCI IDS



D1-Me

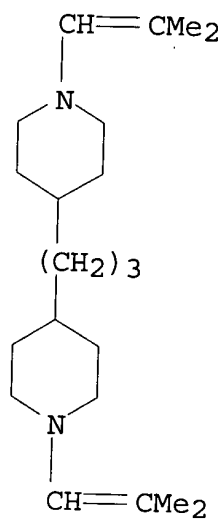
RN 39330-28-4 ZCAPLUS

RN 39366-26-2 ZCAPLUS

CN Hexanedioic acid, polymer with 5-isocyanato-1-(1-isocyanatomethyl)-1,3,3-trimethylcyclohexane, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)piperidine] and trimethyl-1,6-hexanediol (9CI) (CA INDEX NAME)

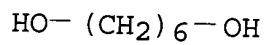
CM 1

CRN 38233-98-6  
CMF C21 H38 N2



CM 2

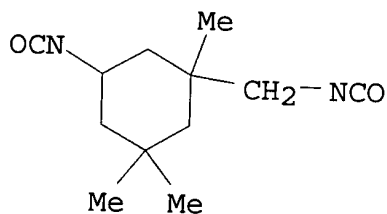
CRN 27476-48-8  
CMF C9 H20 O2  
CCI IDS



3 ( D1-Me )

CM 3

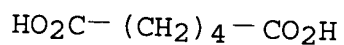
CRN 4098-71-9  
CMF C12 H18 N2 O2



CM 4

CRN 124-04-9

CMF C6 H10 O4



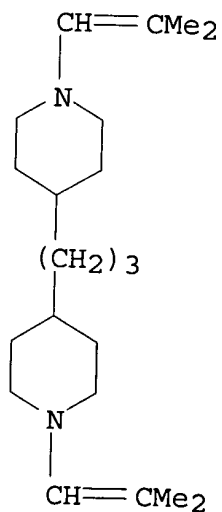
RN 41259-35-2 ZCAPLUS

CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with  
 5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane and  
 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)piperidine] (9CI)  
 (CA INDEX NAME)

CM 1

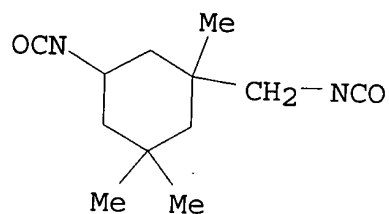
CRN 38233-98-6

CMF C21 H38 N2



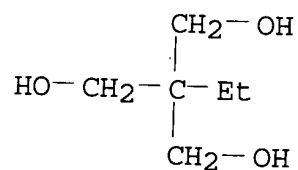
CM 2

CRN 4098-71-9  
CMF C12 H18 N2 O2



CM 3

CRN 77-99-6  
CMF C6 H14 O3

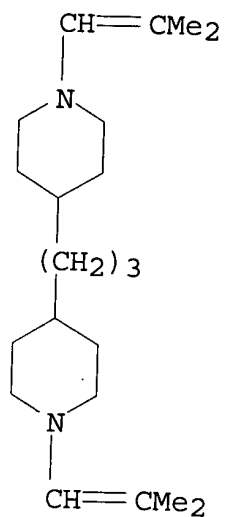


RN 41390-74-3 ZCAPLUS  
CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-,  
polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-  
trimethylcyclohexane (9CI) (CA INDEX NAME).

CM 1

CRN 38233-98-6  
CMF C21 H38 N2

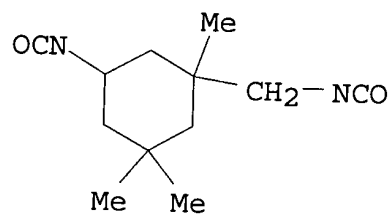




CM 2

CRN 4098-71-9

CMF C12 H18 N2 O2

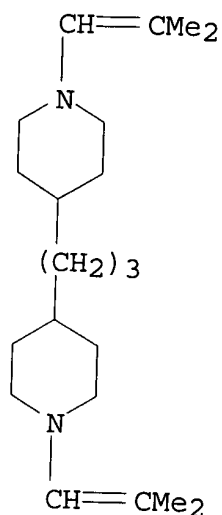


IT 38233-98-6P

(prepn. of)

RN 38233-98-6 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)- (9CI)  
(CA INDEX NAME)



IT 39330-26-2 39330-27-3 39330-28-4  
39366-26-2 41259-35-2 41390-74-3  
(coatings, air-curing)

IT 38233-98-6P  
(prepn. of)

L16 ANSWER 21 OF 27 ZCAPLUS COPYRIGHT 2002 ACS  
1973:86124 Document No. 78:86124 Enamines. Brinkmann, Bernd;  
Griebisch, Eugen (Schering A.-G.). Ger. Offen. DE 2116882 19721207,  
29 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1971-2116882  
19710406.

AB Dienamines (RR1C:CR2NR3ANR4CR2:CR1R, where R,R1,R2,R3,R4, and A = a  
variety of substituents) were prepd. and treated with  
polyisocyanates to form resins useful as coatings, sealants, and  
fillers. Thus, 5.96 parts 4,4'-dipiperidylpropane reacted with 8.18  
parts isobutyraldehyde to give 1,3-bis(N-isobutenyl-4-  
piperidyl)propane (I) [38233-98-6], b0.4 170.deg.. I(10  
parts) reacted with 19.6 parts phenol-capped triisocyanate (from  
tolylene diisocyanate and trimethylolpropane, 50% soln. in ethylene  
glycol acetate) to form a resin which was spread to a film; the film  
hardened in 20 min to a tack-free product in 60% relative-humidity  
air.

IT 39330-26-2P 39330-27-3P 39330-28-4P  
41259-35-2P 41390-74-3P  
(manuf. of, for coatings)

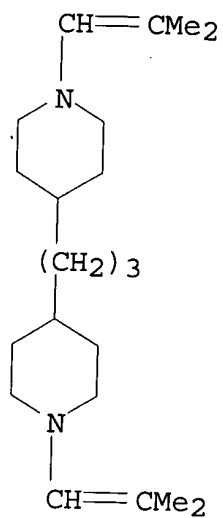
RN 39330-26-2 ZCAPLUS

CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with  
1,3-diisocyanatomethylbenzene and 4,4'-(1,3-propanediyl)bis[1-(2-  
methyl-1-propenyl)piperidine] (9CI) (CA INDEX NAME)

CM 1

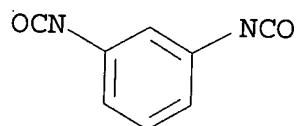
CRN 38233-98-6

CMF C21 H38 N2



CM 2

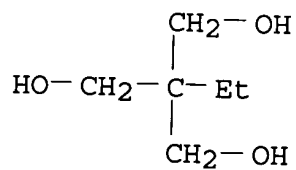
CRN 26471-62-5  
CMF C9 H6 N2 O2  
CCI IDS



D1-Me

CM 3

CRN 77-99-6  
CMF C6 H14 O3



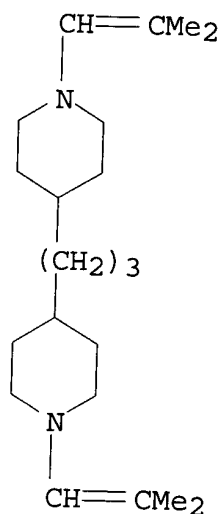
RN 39330-27-3 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-,  
polymer with 1,6-diisocyanato-2,2,4(or 2,4,4)-trimethylhexane (9CI)  
(CA INDEX NAME)

CM 1

CRN 38233-98-6

CMF C21 H38 N2

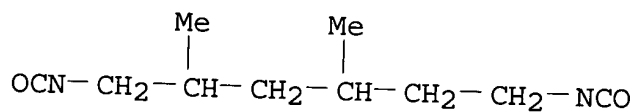


CM 2

CRN 32052-51-0

CMF C11 H18 N2 O2

CCI IDS



D1-Me

RN 39330-28-4 ZCAPLUS

RN 41259-35-2 ZCAPLUS

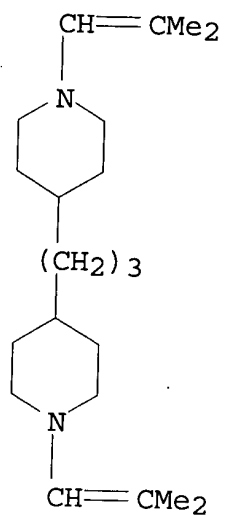
CN 1,3-Propanediol, 2-ethyl-2-(hydroxymethyl)-, polymer with  
5-isocyanato-1-(isocyanatomethyl)-1,3,3-trimethylcyclohexane and  
4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)piperidine] (9CI)

(CA INDEX NAME)

CM 1

CRN 38233-98-6

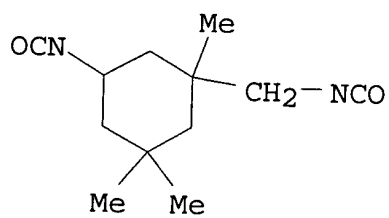
CMF C21 H38 N2



CM 2

CRN 4098-71-9

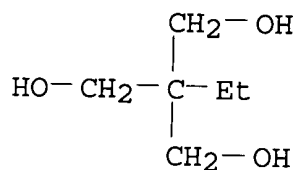
CMF C12 H18 N2 O2



CM 3

CRN 77-99-6

CMF C6 H14 O3



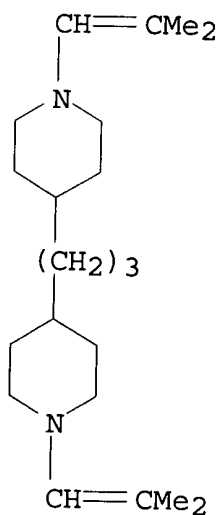
RN 41390-74-3 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)-,  
 polymer with 5-isocyanato-1-(isocyanatomethyl)-1,3,3-  
 trimethylcyclohexane (9CI) (CA INDEX NAME)

CM 1

CRN 38233-98-6

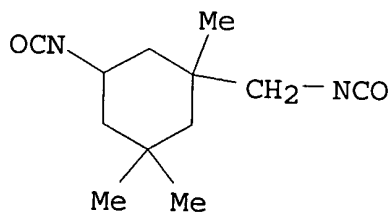
CMF C21 H38 N2



CM 2

CRN 4098-71-9

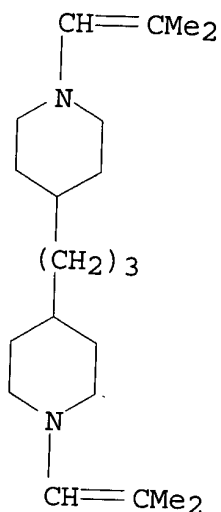
CMF C12 H18 N2 O2



IT 38233-98-6P

(prepn. of)

RN 38233-98-6 ZCAPLUS

CN Piperidine, 4,4'-(1,3-propanediyl)bis[1-(2-methyl-1-propenyl)- (9CI)  
(CA INDEX NAME)IT 39330-26-2P 39330-27-3P 39330-28-4P  
41259-35-2P 41390-74-3P

(manuf. of, for coatings)

IT 38233-98-6P

(prepn. of)

L16 ANSWER 22 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1967:66180 Document No. 66:66180 N-Acyl derivatives of cyclic imines  
as plasticizers. Skau, Evald L.; Mod, Robert R.; Magne, Frank C.  
(United States Dept. of Agriculture). U.S. US 3297703 19670110, 7  
pp. Division of U.S. 3222203 (English). CODEN: USXXAM.  
APPLICATION: US 19640601.AB Division of U.S. 3,222,203 (CA 64, 5049c). The disclosure is  
similar, but the claims are different.

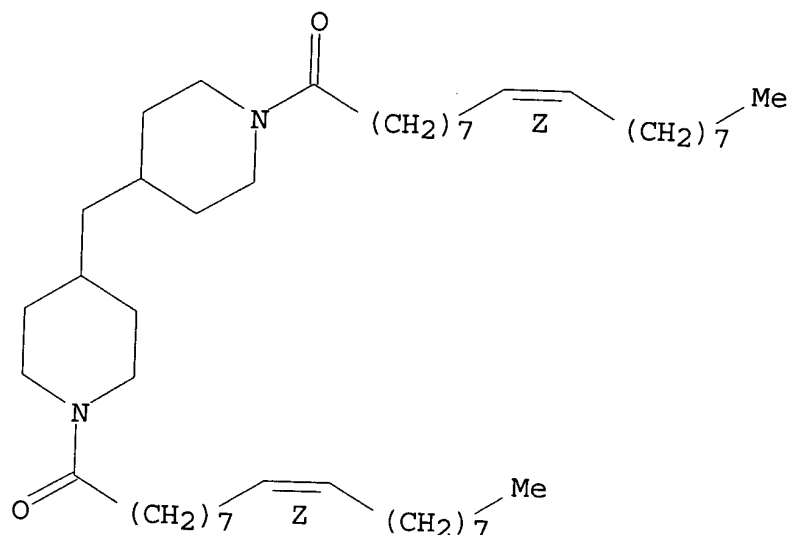
IT 4629-07-6

(as plasticizer in vinyl compd. polymers)

RN 4629-07-6 ZCAPLUS

CN Piperidine, methylenebis[1-oleoyl- (7CI, 8CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 4629-07-6

(as plasticizer in vinyl compd. polymers)

L16 ANSWER 23 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1966:465454 Document No. 65:65454 Original Reference No.  
 65:12177c-h, 12178a Ring-substituted 1-cyano(lower alkyl)  
 piperidines. Zenitz, Bernard L.; Surrey, Alexander R. (Sterling  
 Drug Inc.). US 3262936 19660726, 11 pp. (Unavailable).  
 APPLICATION: US 19610808.

GI For diagram(s), see printed CA Issue.  
 AB

The title compds. (I) were prepd. from the reaction of the  
 corresponding substituted piperidine with acrylonitrile and Et3N. I  
 was then reduced to the corresponding mono- and bis-  
 piperidylpropylamines. These were then treated with  
 4,7-dichloroquinoline (II) to give the corresponding  
 piperidylpropylamino-7-chloroquinolines (III). Thus, 18.82 g.  
 4-carbamoylpiperidine acetate and 13.11 g. Et3N in 125 ml. H2O was  
 treated during 1 hr. with 5.58 g. acrylonitrile at 14-20.degree. and  
 the mixt. stirred 1 hr. and kept overnight to give 12.4 g. I (R =  
 4-CONH2), m. 151-2.6.degree.. Redn. of this compd. in EtOH, i.e. in  
 neutral soln., over 5% Rh-Al2O3 at 210 psi. gave IV (R = 4-CONH2),  
 m. 85-8.degree.. The following I and IV were prepd. (R, m.p. or b.p.  
 I, n25D I, m.p. or b.p. IV, and n25D IV given): 4-CONHMe, m.  
 116.4-17.2.degree., -, - (di-HCl salt m. 239.6-40.6.degree.), -, -;  
 4-CONHEt, m. 110.6-11.8.degree., -, - (di-HCl salt m.  
 245-6.2.degree.), -, -; 4-CONMe2, m. 65-6.8.degree., -, b0.09  
 123-4.degree., 1.5042; 4-CONEt2, b. 151-9.degree./0.073-0.113 mm., -,  
 b. 1318.degree./0.109-0.113 mm., 1.4939; 4-CH2Ph, b0.08  
 131.5-5.0.degree., 1.5289, - (di-HCl salt, m. 191.6-3.4.degree.), -, -;  
 4-CH2C6H11, b0.12 102.0-12.0.degree., 1.4889, - (di-HCl salt, m.  
 280.2-2.4), -. The following I were also prepd. (R, m.p. or b.p.,  
 and n25D5 given): 4-OH, b. 119-22.degree./0.25-0.46 mm., 1.4961;



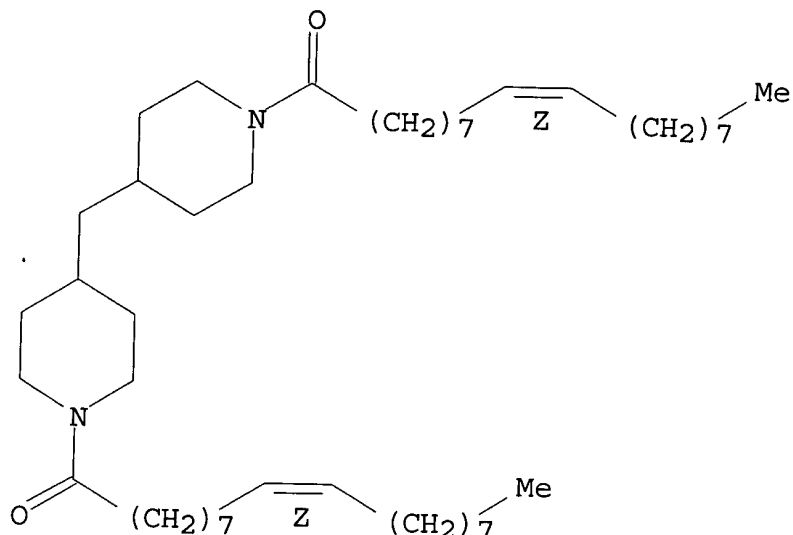
3-AcNH, m. 69.273.2.degree., -; 2-CH<sub>2</sub>C<sub>6</sub>H<sub>11</sub>, b. 106.5-11.5.degree./0.07-0.09 mm., 1.4948; 4-CH<sub>2</sub>OH, b. 102.0-4.1.degree./0.065-0.071 mm., 1.4930; 4-(CH<sub>2</sub>)<sub>3</sub>OH, m. 44.2-5.4.degree., -; 2-CO<sub>2</sub>Et, b. 64.1-6.5.degree./0.029-0.031 mm., 1.4675 (HCl salt m. 185-8.degree.); 3-CO<sub>2</sub>Me, b. 68-72.degree./0.023 mm., 1.4735; 4-CO<sub>2</sub>Me, m. 42.4-3.4.degree., b. 123-4.degree./0.38 mm., -; 4CO<sub>2</sub>CH<sub>2</sub>CHMe<sub>2</sub>, b. 205-7.degree./16 mm., 1.4600. Redn. of I (R = 4-CONHMe) in EtOH satd. with NH<sub>3</sub> over Rh-Al<sub>2</sub>O<sub>3</sub> at 208 psi. gave some ether-sol. IV (R = 4-CONHMe) and ether-insol. bis[3-[4-(methylcarbamoyl)-1-piperidyl]propyl]amine (V, R = 4-CONHMe), m. 203.0-3.8.degree.. V similarly prepd. were (R, m.p. given): 4-CONHEt, 191.2-2.8.degree.; 4-CONMe<sub>2</sub>, 87.8-8.6.degree.; 4-PhCH<sub>2</sub>, - (b. 87-98.degree./0.06 mm., n<sub>25D</sub> 1.5266; tri-HCl salt m. 266-8.degree.); 4-CH<sub>2</sub>C<sub>6</sub>H<sub>11</sub>, - (b. 214-29.degree./0.0003 mm., n<sub>25D</sub> 1.5066; tri-HCl salt m. >300.degree.). II (11.9 g.), 17.9 g. IV (R = CONHMe), and 35 g. PhOH was heated at 115-25.degree. 24 hrs. to give 9.4 g. 4-[3 - [4 - (methylcarbamoyl) - 1 - piperidyl] propylamino] - 7 - chloro-quinoline (III, R = CONHMe, n = 1), m. 174.8-5.4.degree.. III similarly prepd. from IV and V were (R, n, m.p. given): CONH<sub>2</sub>, 1, 217.4-19.6.degree.; CONHEt, 1, 188.2-8.8.degree.; CONMe<sub>2</sub>, 1, 187.2-4.4.degree. (sic); CONEt<sub>2</sub>, 1, 140.0-40.6.degree.; CONHMe, 2, 164.0-5.0.degree.; CONHEt, 2, 165.4-6.2.degree.. 4-(Cyclohexylmethyl)piperidine (72.5g.) and 35.2 g. .omega.-bromocapronitrile in 150 ml. C<sub>6</sub>H<sub>6</sub> was refluxed 4hrs. to give 40.3 g. 1-(5-cyanopentyl)-4-(cyclohexylmethyl)piperidine (VI, R = cyclohexylmethyl, n = 5), m. 40.0-2.8.degree.. Other VI prepd. were (R, n, m.p. given): 4-cyclohexylmethyl, 3, 45.6-5.2.degree.; 2-cyclohexylmethyl, 4, 150.0-2.4; 4-cyclohexylmethyl, 4, 204.8-6.0.degree.; 4-cyclohexylmethyl, 1, 78.5-9.8.degree.; 4cyclohexylmethyl, 6, - (HCl salt m. 187.4-9.0.degree.); 4-(N-phenylN-acetamido), 5, m. 55.2-6.4.degree.. The prepn. of many other I, III, IV, and V was described but no phys. consts. were given. III have hypotensive, antimalarial, anthelmintic, and trichomonacidal activities. IV have hypotensive and coronary dilatory activities. I and V have hypotensive, monoamine oxidase inhibitory, and antibacterial activities.

IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(prepn. of)

RN 4629-07-6 ZCAPLUS

CN Piperidine, methylenebis[1-oleoyl- (7CI, 8CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(prepn. of)]

L16 ANSWER 24 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1966:36674 Document No. 64:36674 Original Reference No. 64:6850c-e  
Plasticizers for vinyl chloride resins. Skau, Evald L.; Mod, Robert  
R.; Magne, Frank C. (U.S. Dept. of Agriculture). US 3219612  
19651123, 5 pp. (Unavailable). APPLICATION: US 19630225.

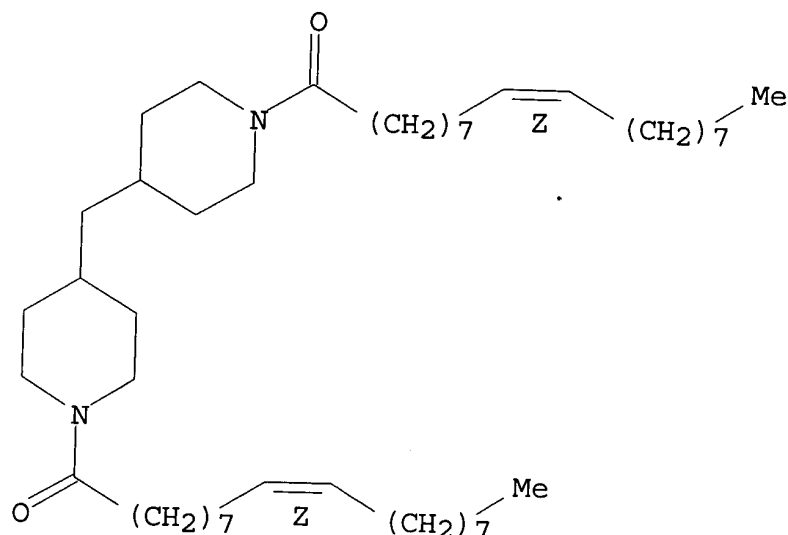
AB N,N-disubstituted long-chain aliphatic amides, the acyl component of  
which is either a C10-18 alkanoyl group, or a C18-22 alkenoyl group,  
the amide N being a member of a heterocyclic ring, all of the other  
ring members being C or N; also certain amides in which the acyl  
component is derived from dibasic alkanolic acids, from epoxidized  
alkanoic acids, and from dimer acids; also N-acyl cyclic imines of  
mixed acids from natural sources; also mixts. of the above are  
compatible plasticizers for vinyl chloride resins. Some impart low  
volatility loss, resistance to microbial action, excellent low-temp.  
properties, and stability to northern light exposure. They are also  
efficient compatible plasticizers for NBR rubber, imparting low  
volatility loss and excellent low-temp. properties. Thus, a mixt.  
of 63.5% Vinylite VYDR, 35% N-erucoylpiperidine, 0.5% stearic acid,  
and 1% basic Pb carbonate did not exude after 2 weeks, had 2890 psi.  
tensile strength, 1380 psi. modulus at 100% elongation, 400%  
elongation, and -49.degree. brittle point.

IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(as plasticizer for nitrile rubber and vinyl chloride resins)]

RN 4629-07-6 ZCAPLUS

CN Piperidine, methylenebis[1-oleoyl- (7CI, 8CI) (CA INDEX NAME)]

Double bond geometry as shown.



IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(as plasticizer for nitrile rubber and vinyl chloride resins)

L16 ANSWER 25 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1966:27443 Document No. 64:27443 Original Reference No. 64:5049c-h  
N-Acyl derivatives of cyclic imines. Skau, Evald L.; Mod, Robert  
R.; Magne, Frank C. (U.S. Dept. of Agriculture). US 3222203  
19651207, 7 pp. (Unavailable). APPLICATION: US 19631108.

GI For diagram(s), see printed CA Issue.

AB The title compds. and mixts. of these are compatible plasticizers  
for vinyl chloride resins. To a soln. of 22.4 g. piperidine (I) in  
60 ml. C6H6, 39.7 g. oleoyl chloride was added dropwise with  
stirring, the mixt. was stirred 1 hr., filtered, washed with dil.  
HCl, with H2O, dried over Na2SO4, percolated through an activated  
alumina column, and the amide eluted with 1:1 EtOH-C6H6 to yield  
N-oleoylpiperidine (II, R = oleoyl, R1 = R2 = R3 = R4 = R5 = H)  
(IIa). A mixt. of 31.6 g. 2-methylpiperidine, 60 g. oleic acid, and  
20 ml. C6H6 was refluxed in an app. equipped with a Dean-Stark trap  
until evolution of H2O ceased to give II (R = oleoyl, R1 = Me, R2 =  
R3 = R4 = R5 = H). The piperidide of selectively hydrogenated  
cottonseed oil fatty acids, animal acids (Neofat No. 65), rapeseed  
oil fatty acids, and Limnanthes douglasi seed oil fatty acids were  
prepd. as above. IIa was treated with PhCO2H to give  
N-epoxystearoylpiperidine having an oxirane O content of 4.49%.  
N-Epoxyoleoylpiperidine and N-diepoxyoctadecanoylpiperidine were  
similarly prepd. A mixt. of 24.5 g. I and 90 g. Me ricinoleate was  
refluxed 36 hrs. at a temp. sufficient to distil the formed MeOH  
(but not I) to yield II (R = ricinoleoyl, R1 = R2 R3 = R4 = R5 = H).  
Me oleate (50 g.) was slowly added to a vigorously stirred mixt. of  
24.2 g. 4-propanolpiperidine and 0.61 g. Na dissolved in abs. MeOH  
and the reaction carried out with continuous stirring at  
65-75.degree. and 60 mm. pressure to give II (R = oleoyl, R1 = R2 =

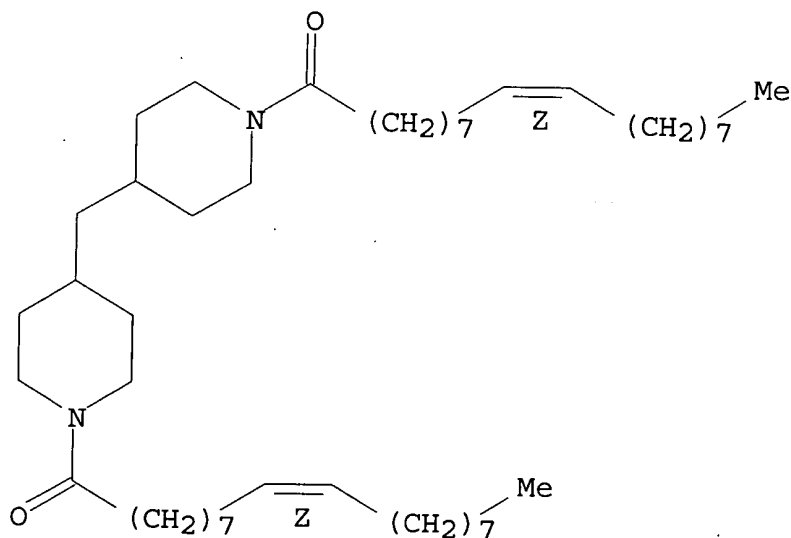
R4 = R6 = H, R3 = 3-oleoyloxypropyl) which was cold saponified to II (R = oleoyl, R1 = R2 = R4 = R5 = H, R3 = CH2CH2CH2OH) (IIb). To a soln. of 26 g. IIb, 5.1 g. C5H5N, and 75 ml. C6H6, 5 g. AcCl was added dropwise with stirring to give II (R = oleoyl, R1 = R2 = R4 = R5 = H, R3 = AcOCH2CH2CH2). The following I were similarly prepd. (given R, R1, R2, R3, R4, and R5): oleoyl, H, Me, H, H, H; oleoyl, H, H, Me, H, H; oleoyl, H, H, Et, H, H; oleoyl, H, H, H, Me, H, H; oleoyl, Me, H, H, Et, H; oleoyl, Me, H, H, H, Me; palmitoyl, H, H, H, H, H; stearoyl, H, H, H, H, H; erucoyl, H, H, H, H, H; decanoyl, H, H, nonyl, H, H; oleoyl, H, H, 5-nonyl, H, H; linoleoyl, H, H, H, H, H; 2-ethylhexanoyl, H, H, H, H, H; naphthenoyl, H, H, H, H, H; oleoyl, Et, H, H, H, H; oleoyl, Pr, H, H, H, H; oleoyl, H, H, Pr, H, H; oleoyl, PhCH2, H, H, H, H; oleoyl, H, H, PhCH2, H, H; erucoyl, H, H, n-nonyl, H, H. The following amines were similarly prepd. by the above procedures: N-oleoylhexamethylenimine, N-oleoylpyrrolidine, N-oleoyl-1,2,3,4-tetrahydroquinoline, N-oleoyl carbazole, N-oleoyl-3-azabicyclo[3.2.2]nonane, N,N'-sebacoyldipiperidine, piperidide of dimer acid (Empol 1014), N,N'-dioleoyldipiperidinomethane, N,N'-dioleoylpiperazine, N-oleoyl-N'-methylpiperazine, N,N'-didecanoylpiperazine, and Et 2,2-dimethyl-3-(4-n-nonylpiperidino)carbamoylcyclobutaneacetate.

IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(prepn. of)]

RN 4629-07-6 ZCAPLUS

CN Piperidine, methylenebis[1-oleoyl- (7CI, 8CI) (CA INDEX NAME)]

Double bond geometry as shown.



IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(prepn. of)]

L16 ANSWER 26 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1966:20231 Document No. 64:20231 Original Reference No. 64:3779e-f

Plasticizers for chlorine-contg. polymers. Klug, Helmut; Jochinke, Helmut; Bollinger, Richard (Farbwerke Hoechst A.-G.). DE 1202485 19651007, 2 pp. (Unavailable). APPLICATION: DE 19600209.

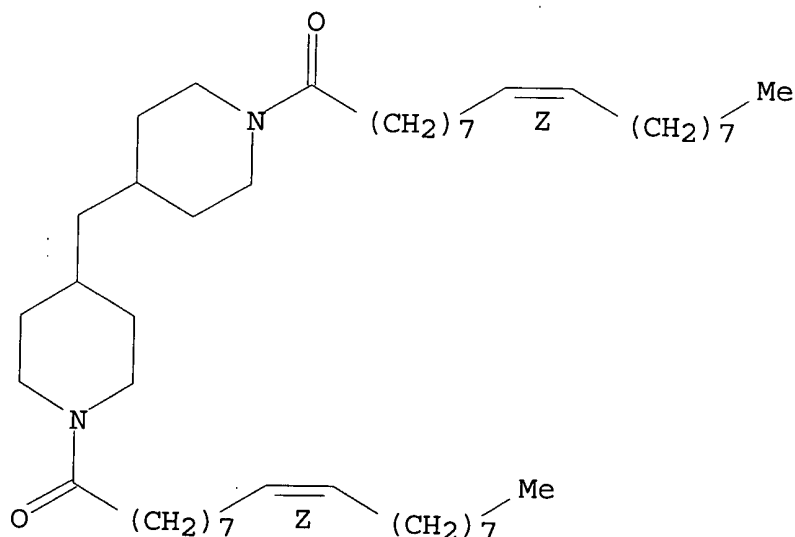
AB The addn. of 5-15% of chlorinated aliphatic esters to chlorinated natural paraffins substantially eliminated the tendency to exude when used to plasticize poly(vinyl chloride) or other chlorinated polymers. The C8-22 aliphatic esters contained 10-40% Cl. The paraffins, m. 30-55.degree., were chlorinated to 35-55% Cl.

IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(as plasticizer for vinyl chloride polymers)

RN 4629-07-6 ZCAPLUS

CN Piperidine, methylenebis[1-oleoyl- (7CI, 8CI) (CA INDEX NAME)

Double bond geometry as shown.



IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
(as plasticizer for vinyl chloride polymers)

L16 ANSWER 27 OF 27 ZCAPLUS COPYRIGHT 2002 ACS

1966:19204 Document No. 64:19204 Original Reference No. 64:3498b-f N-Oleoyl-2-ethylethylenimine. Skau, Evald L.; Mod, Robert M.; Magne, Frank C. (U.S. Dept. of Agriculture). US 3219659 19651123, 6 pp. (Unavailable). APPLICATION: US 19650413.

AB The title compds. are plasticizers for vinyl chloride resins, and they show a wide spectrum of anti-fungal and anti-microbial activity. They are also softeners of Buna rubber. Twenty-two and four-tenths g. of piperidine were dissolved in 60 cc. of C6H6 and 39.7 g. of oleoyl chloride were added dropwise with stirring. After stirring for an addnl. hr., the mixt. was filtered, washed with dil. HCl and H2O, and dried over anhyd. Na2SO4. Free acid was removed by percolating the C6H6 soln. through a column of activated Al2O3 and eluting the amide with a 1:1 EtOH-C6H6 mixt. The solvent was removed in vacuo leaving N-oleoylpiperidine. Similarly prepd. were:

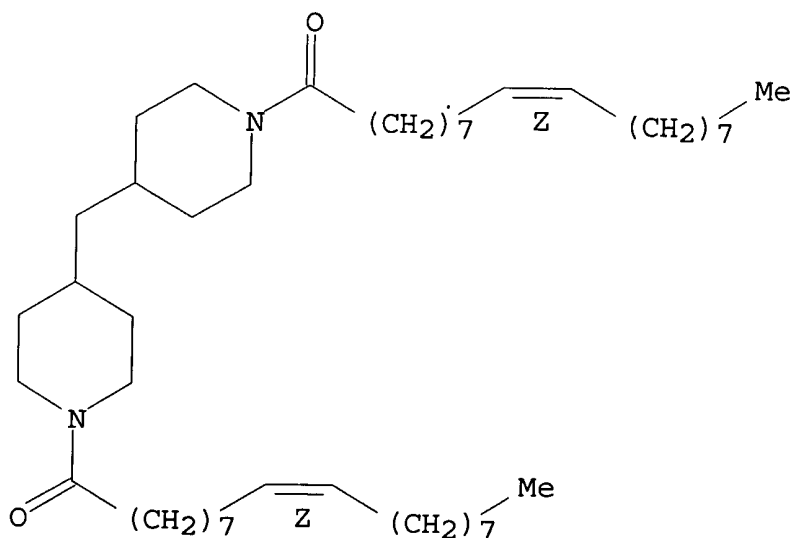
N-oleoylhexamethylenimine; N-oleoyl-2-methylpiperidine;  
 N-oleoyl-3-methylpiperidine; N-oleoyl-4-methylpiperidine;  
 N-oleoyl-4-ethylpiperidine; N-oleoyl-4-nonylpiperidine;  
 N-oleoyl-2-methyl-5-ethylpiperidine; piperidide of selectively  
 hydrogenated cotton seed oil fatty acids; piperidide of animal  
 acids; N-oleoylpyrrolidine; N-oleoyl-1,2,3,4-tetrahydroquinoline;  
 N-oleoyl-2,6-dimethylpiperidine; N-oleoylcarbazole;  
 N-oleoyl-3-azabicyclo[3.2.2]nonane; N-palmitoylpiperidine;  
 N,N'-seba-coyldipiperidine; N-stearoylpiperidine; piperidide of  
 dimer acid (Empol 1014); mixed piperidides of oleic acid;  
 N-erucoylpiperidine; N-decanoyl-4-nonylpiperidine; N-epoxystearoyl  
 piperidine; piperidide of rapeseed oil fatty acids;  
 N,N'-diolcoyldi-piperidinomethane; N-oleoyl-4-(5-nonyl)piperidine;  
 mixed piperidines of oleic acid; N,N'-dioleoylpiperazine;  
 N-oleoyl-N'-methylpiperazine; N,N'-didecanoylpiperazine; piperidide  
 of cottonseed oil fatty acids; N-linoleoylpiperidine;  
 N-decanoyl-2-methylpiperidine; N-decanoyl-3-methylpiperidine;  
 N-decanoyl-4-methylpiperidine; N-decanoyl-4-ethylpiperidine;  
 N-decanoyl-2-propylpiperidine, N-decanoyl-2-propylpiperidine;  
 N-decanoyl-4-propylpiperidine; N-decanoyl-2-(5-nonyl)piperidine;  
 N-decanoyl-2,6-dimethylpiperidine; N-decanoyl-2-methyl-5-  
 ethylpiperidine; N-decanoyl-2-benzylpiperidine; N-decanoyl-4-  
 benzylpiperidine; N-decanoyl-3-azabicyclo [3.2.2] nonane;  
 N-oleoyl-N'-carbethoxypiperazine; N-(.alpha.-  
 oleoyloxypropionyl)piperidine; N-oleoyl-2-ethylethylenimine.

IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-  
 (prepn. of)]

RN 4629-07-6 ZCAPLUS

CN Piperidine, methylenebis[1-oleoyl- (7CI, 8CI) (CA INDEX NAME)]

Double bond geometry as shown.



IT 4629-07-6, Piperidine, methylenebis[1-oleoyl-

L1 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2002 ACS  
CN Piperidine, 4,4'-(1,3-propanediyl)bis- (9CI) (CA INDEX NAME)  
OTHER CA INDEX NAMES:  
CN Piperidine, 4,4'-trimethylenedi- (8CI)  
OTHER NAMES:  
CN **1,3-Bis(4-piperidyl)propane**  
CN 1,3-Di-4-piperidylpropane  
CN 4,4'-(1,3-Propanediyl)bispiperidine  
CN 4,4'-Trimethylenedipiperidine  
CN 4,4'-Trimethylenepiperidine  
CN DI-PIP

